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Journal of the British Dental Association

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Original Communications.

The Dental "Yorick."

BY GEORGE BRUNTON (LEEDS).

THE dental "Yorick" is a copy in aluminium of a human skull and is shown in fig. 1, on the head-rest of an operating chair, fastened by two leather straps in the same position that a patient's head would occupy while being operated upon. Stretched on a wire frame is an india-rubber mask to represent the lips and cheeks; it is not required in ordinary demonstrations, but may be used to embarrass the student. The uses to which this dental "Yorick" may be put among others are: a head on which a student may practise under the same conditions as in the natural subject, *i.e.*, as to position and methods, technique, &c. The teacher may demonstrate the wedging apart of teeth, the preparation of cavities for filling; the application of the rubber-dam; the methods of ligation in cases of fracture; regulation, plantation, and replantation; the application of splints; the filling of cavities with gold, amalgam, plastics, &c.; the adjustment of clamps and matrices; the treatment of root canals, extirpation of pulps, sponge-grafting through the nerve canal; the fitting of crowns, pieces of bridge-work, regulation appliances, artificial dentures; extraction of teeth or roots; treatment of cases of luxation or fracture, and other uses which will suggest themselves to the demonstrator or teacher.

Fig. 2 shows the mask removed; the mandible is kept in position by elastic bands to represent the muscles. Fig. 3 shows the mandible removed. Fig. 4 shows all the removable parts. In the middle and behind the mandible is the frontal portion, which is removable to enable one to reach the winged nut which works on a screw-bolt

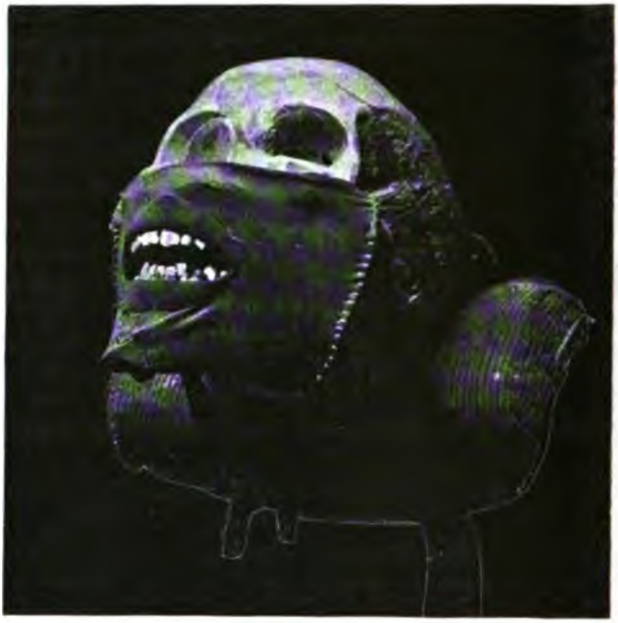

FIG. 1.

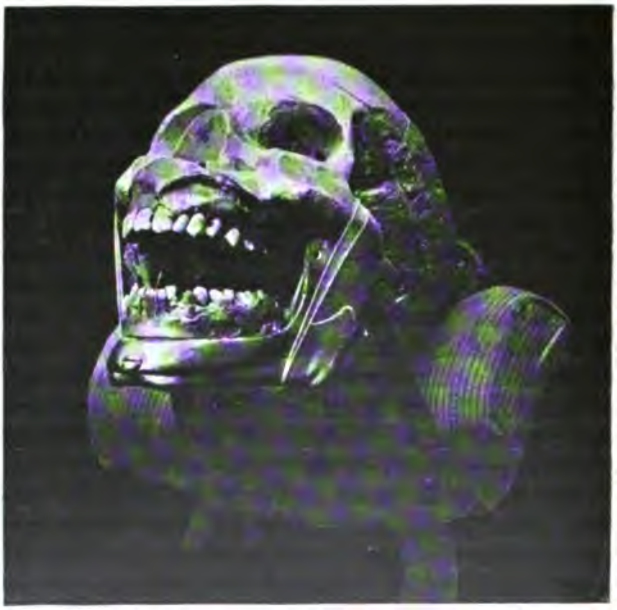

FIG. 2.

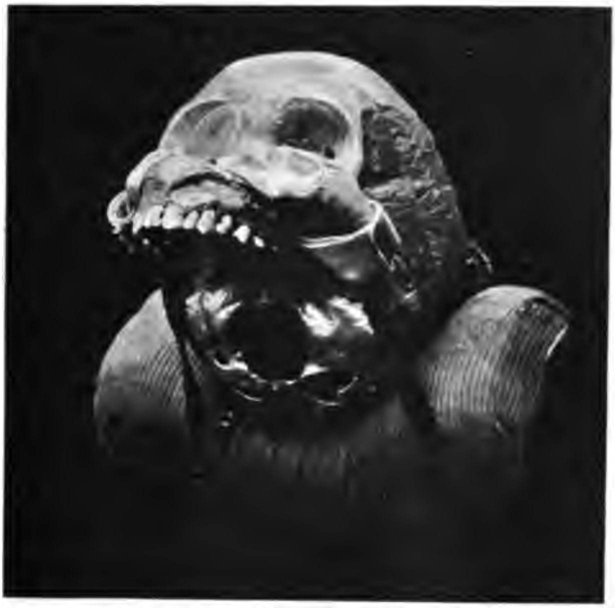

FIG. 3.

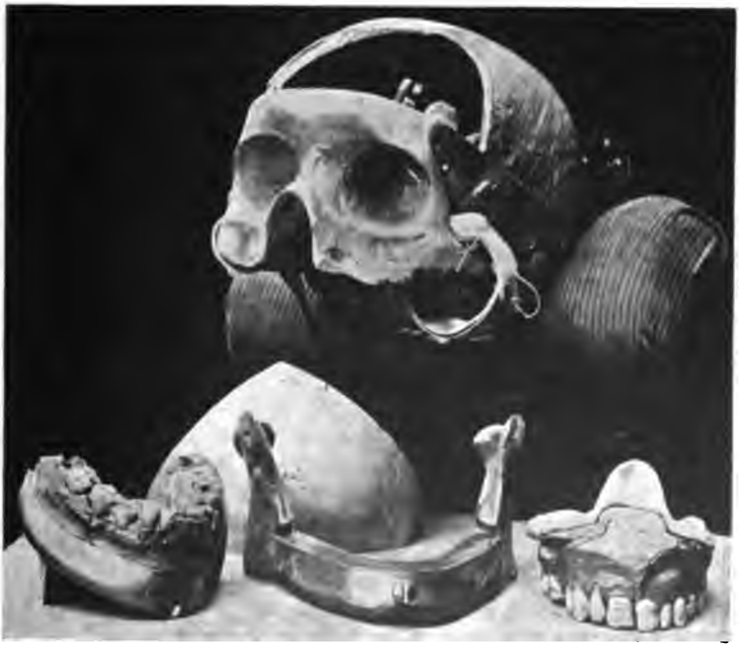

FIG. 4.

to hold the jaw in position. On the left is seen the frame which fits on the mandible and is held in position by one screw.

Freshly extracted teeth are kept in a carbolised solution till required. When a case for students' practice is required, the suitable teeth are selected, lightly dried with a cloth, and the roots, from the neck to apex, coated with a solution of india-rubber in chloroform and placed in order. An ordinary impression tray is filled with modelling clay which is mixed with glycerine instead of water, a plaster model is selected and coated with vaseline, and an impression taken in clay. On removing the impression the natural teeth are inserted into the several depressions in the clay left by the teeth on the plaster cast. The frame which fits on the mandible (or, if upper teeth are to be mounted, the frame for the jaw) is inverted and placed over the roots of the teeth; more clay is placed to make up the edges; and fusible metal, which has been melting while this manipulation has been in progress, is now poured over the roots of the teeth and up to the level of the floor of the frame. When cool the clay is removed, and any surplus metal is trimmed off. The frame can now be fixed on the mandible for operation, or may be placed in the carbolised fluid till required, thus keeping the teeth from getting dry, an important point, because dry teeth are brittle and not well suited to operate on.

After the student has finished his work, if a filling or crown, the tooth can be cut out with a hot knife; if a piece of bridge-work, the frame can be set in a pan of boiling water over a gas burner, when the metal alveolus melts away, and the faults (if any) can be detected and pointed out. If practice in extracting is required, the roots of the teeth should be coated with gutta-percha instead of rubber.

The articulation of the teeth is obtained by placing a piece of warm modelling compo between the jaw and the head, bringing the mandible and jaw together and screwing down the winged nut.

The Dental Manufacturing Co., of Lexington Street, W., have kindly undertaken to supply this head, also suitable fusible metal and clay.

Orthoform in Toothache.

Dr. Hildebrandt asserts that orthoform causes to cease completely the violent pain due to inflammation of the pulp of a decayed tooth. To this end it is sufficient to introduce into the cavity of the tooth a plug of cotton steeped in an alcoholic solution of orthoform. The pain instantly disappears, and for a considerable time. Being absolutely deprived of any toxic properties, orthoform constitutes in such cases a simple remedy, and one which the patient can apply himself without danger.—*Medical Press.*

Formagen.[1]

BY H. R. F. BROOKS, L.D.S.

IN introducing the topic of formagen to your notice this morning, my object is rather to provoke a discussion which shall elicit the experience and views of others, than to read an exhaustive treatise. In our daily practice we have continually brought to our notice new drugs and re-agents of various kinds (particularly in the region of antiseptics); many of them are of doubtful utility; but some are entitled to more than passing notice. In this latter category formagen is worthy of occupying a prominent place. Most of us here present have probably made use of it, but, as Dr. Abraham has unfortunately introduced it as a "secret remedy," there are probably some who are not acquainted with its constitution, properties, and mode of action, and I may be forgiven if I digress briefly from the more practical side of the subject.

Formagen consists of a powder—principally calcium carbonate (which apparently acts merely as a medium)—and a liquid—carbolic acid and eugenol—each saturated, it is claimed, with formaldehyde vapour, which is gradually given off again when the two are mixed together. Formaldehyde, or to speak more correctly, formic aldehyde (CH_2O), is a pungent gas produced by the imperfect oxidisation of methyl alcohol, depriving the latter of two atoms of hydrogen. It is a powerful coagulant and germicide. In a 40 per cent. (the highest practicable) aqueous solution, and known as formalin, it has been much used in medicine: it is especially valuable to the histologist and pathologist for the hardening of soft tissues, which it effects without cellular contraction. Having already found it serviceable for this latter purpose, I was induced by a suggestion of Lepkowski to try it in pulp treatment. My trial extended to two cases only (both of acute inflammation), and both, I am sorry to say, were entire failures. In the first I used the 40 per cent. solution as recommended, filling over with temporary gutta-percha, but the pain caused was so intense that, in the course of an hour or two, I reluctantly removed the dressing and treated with arsenious acid. Thinking that pressure might account for the pain in this case, a few days after, in a similar one, I mixed a weaker solution with the powder of Fletcher's artificial dentine. This I applied, carefully capping with ferrotype, and filling with oxyphosphate. The result was the same as before, and I agreed with my patient that it was not altogether a success. The forbearance of those coming under our care is proverbial, but I did not tempt human nature further.

Having at the time a prejudice against coagulants in root treatment I did not use it in this direction, except, as I mentioned in a paper read before the Branch eighteen months or so ago, for the purpose of mummifying dead pulps. The results may be considered to have been satisfactory, as no trouble followed, but the system did not commend itself to me. My failures with formalin made me very sceptical as to formagen, and I did not try it when first introduced. It was perhaps as well, because in the earlier samples the percentage of formaldehyde was, I believe, greater than now, and the trouble I had before experienced might possibly have been repeated. In formagen, as we get it to-day, it is not easy to discover any trace of formaldehyde at all. Mr. Colyer gave expression to this in a paper recently read before the Odontological Society. My own experience goes to show that it is quite possible to demonstrate its presence in reasonably fresh samples, and under conditions that obtain in the mouth.

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[1] Read at the Annual Meeting of the Central Counties Branch, July 2, 1898.

At the present time any definite statement upon the permanence of the results obtained with formagen would be manifestly impossible, but it will probably be conceded by all who have given it a fair trial that it is a preparation of very considerable value. After a trial extending over about twelve months, I confess that I should be very sorry not to include formagen, or some similar reagent, in my armamentarium. Since I undertook to open a discussion upon it I have drawn upon my journal, and have tabulated 79 cases in which I have employed Abraham's preparation, discarding those I was unable to trace, or which were too recent to pronounce an opinion upon. Of these 79, 56 were, as I shall explain later, treated experimentally, that is, dressed with formagen, filled temporarily, and reopened in from two to four months. In 49 of these 56, pulpitis and pain in a greater or less degree existed (in many there was suppuration); in 7 there was exposure without inflammation or pain. In 53 of these 56 the results were perfectly satisfactory, that is, upon opening up, the pulps were healthy and generally normally sensitive. In a few instances there was diminished reaction. All were refilled permanently—usually capped again with formagen. In no case, so far as I can ascertain, nine to twelve months after, has the pulp since died, although I was prepared for such with the partly anæsthetic pulps. Of the remaining 3 experimental cases 2 were undoubted failures, the pain remaining excessive, and no improved pulp condition following. In the third case the tooth gave no trouble, and the patient neglected to return as directed, until at the end of fourteen weeks, the temporary gutta-percha having disintegrated, pain recommenced. As he was shortly going beyond reach of a dentist, and as I had insufficient confidence in formagen at that time, I applied arsenic. Under the circumstances this may fairly be added to the list of successes. Twenty-three cases are left (mostly of a more recent date), each of which I dressed with formagen, and filled permanently at the first visit; 9 were exposures of healthy pulps which all did well; in 14 there was inflammation and pain of varying degree. Of these last I was obliged, other means failing, to drill out one, and dress with arsenic. With another a somewhat curious thing happened. Some time after filling, the patient, who resides at a distance, suffered pain, and applied for assistance to the local general practitioner, who promptly pounced upon this (an upper molar) and extracted it. The pain continuing, the next day he came to me, and I found the cause to be (as is by no means unfrequent) a lower wisdom, which I extracted. I made a careful examination of the upper tooth, from which I drew some deductions upon the action of formagen. The pulps, though somewhat shrunken, had apparently been restored to health. My opinion upon this point was confirmed upon microscopical examination, some sections showing, in addition, unmistakable calcospherites. It is possible that these may have been present independently of injury or disease, but I am inclined to the hypothesis that they were the result of reparative process, and demonstrate not only that the pulp survives, but that its cells may resume their original functions under the protection of formagen.

The method of applying formagen merits discussion. My own original plan was to remove the most softened only of the *dêbris* over the pulp, wash with dilute carbolic, dry, and place the cement in position, filling over with temporary gutta-percha, without any cap. Latterly I have been more careful to remove all carious tissue over the pulp, where possible without excessive pain. I have then placed the cement in the hollow of a gold cylinder, flattened out and made concave, and applied it thus, covering with oxyphosphate to avoid pressure in subsequent filling, which has usually been permanent. Judged by results there would appear little to choose between the two methods, but theoretically, at any rate, the latter is the better. There is no doubt that the unyielding environment of the pulp accounts for much of the want of success that has hitherto met our attempts at its conservative treatment. The desideratum has been to combine with medicamental treatment some mechanical agency to relieve inflammatory pressure. Such means would be a yielding or absorbent surface in actual contact with it. I have a suspicion that the layer of formagen touching the pulp remains somewhat elastic. We know that the cement fulfils the second condition, and is capable of absorbing liquor sanguinis. For these reasons, and also to provide a surface for the action of the reagents, I do not hesitate to freely expose the pulp. The cap is as much for convenience of application as for the avoidance of subsequent pressure. The importance of the mechanical properties of the preparation is perhaps secondary to its specific action, which is not yet thoroughly understood. A probable theory has been suggested, as the result of a series of experiments, by Bauchwitz. He says that the carbolic eugenol first acts as an anodyne (the eugenol increasing the hyperæmia); the nascent formaldehyde then penetrates the whole tissue, destroying pathogenic germs and coagulating the albumen, stasis following. The pressure caused by the hyperæmia, and exudation of liquor sanguinis, is relieved by the absorbent (*and possibly yielding?*) cement, and hence little or no pain results. Such part of the pulp as was not decomposed before treatment then resumes its normal functions. The theoretical objection has been raised that eventually the pulp probably dies, the formaldehyde merely arresting further pathological changes. Experience, however, appears to show that (at any rate in the majority of cases) this is not so. Even Kunert, who disapproves of the Bauchwitz theory, found that, some months after treatment, in most of his cases, the pulp reacted normally. Others have confirmed this. Of my own cases, as I have said, only three—all badly suppurating—had a contrary result, and in these the method may have been in fault. But allowing these the percentage is not unsatisfactory.

There are other uses for formagen. One of these is the filling of roots. I have only latterly adopted it for this purpose, but so far with entire success. I can imagine no more ideal material, because of the extremely penetrating and germicidal power of formaldehyde. It may also be used for embalming devitalised pulps, which for any reason it is undesirable or impossible to remove. It is of special service in cases of tortuous or constricted canals. Professor Böunecken has recently recommended a formula containing formalin for this purpose, but it is a questionable improvement upon formagen.

The manipulation of formagen is rendered more difficult by the persistence with which it clings to the instruments when applying it. Possibly this will be remedied. Meanwhile Dr. Schallenmüller has introduced an almost identical cement, but devoid of objectionable stickiness, which he terms formageno. So far as I have been able to ascertain, the action is not interfered with by the trifling difference in its constitution, but my tests have not of course the advantage of time.

In conclusion I may sum up the deductions which I have drawn from my use of formagen, as follows:—

(1) It approaches compliance with the conditions of an ideal pulp dressing laid down by Dr. Miller.

(2) It not only does not cause pain, but almost invariably relieves such as already exists.

(3) It appears applicable to all cases not complicated with periostitis.

(4) A permanent filling may at once be inserted over it, except in special circumstances.

Radiography in Dental Practice.

By E. A. MANTON, L.D.S.Eng.

The following notes of a case in practice may be of interest:—

The parents of a young gentleman, aged 17, consulted me with regard to the absence of the right maxillary canine from the mouth of their son. The history of the case was that some four years previously a right maxillary canine had been removed and never replaced by nature. The extracted tooth was believed to have been the temporary canine; the permanent canine never, however, having put in an appearance, some anxiety was felt, and the case came into my hands.

An examination of the mouth gave negative results as far as determining the existence of a permanent canine on the right, the left maxillary canine being *in situ* and normal in position. The dentition as a whole was below the average in general quality, the teeth being small and imperfectly developed; a space existed between the right maxillary lateral incisor and the first bicuspid of a width of six *centimetres*. I learnt also that the patient was born with four incisors, two upper and two lower.

Being unable to determine if it were a case of malpraxis on the part of the dentist who extracted the tooth from the canine region four years ago, or of suppression of the permanent canine, and the family history showing similar cases of suppression of various teeth, it was decided, in order to settle the question, to radiograph the mouth.

Our *modus operandi* was as follows:—models of the mouth being taken, a vulcanite splint was made for the maxilla, covering the palate and the masticating surfaces of the bicuspids and molars, but not encroaching on the labial aspect of the teeth; the case was also well cut away behind the incisors—this splint served to retain the sensitised plate in the mouth during the pose.

Six plates were prepared by roughly shaping to the palate portions of ordinary Kodak film, and enveloping them in red and then black paper, gumming the edges of the black paper, and then encasing the whole in envelopes of rubber dam, also roughly adapted to the palate, the edges of which we sealed with the ordinary solution for repairing bicycle tyres. The patient's head being then supported, a plate was placed in the mouth and held in position by the vulcanite splint being inserted, and the lad told to close his teeth.

For the first three plates the new Colandre tube was employed, at a distance of 40 *centimetres* from the patient's face, with a current of 55 *volts* and 4 *ampères*, the poses being of thirty seconds, one minute and two minutes respectively. The result of these attempts was entire failure. The next three plates were impressioned by a Muret tube.

No. 1: fig. 1, distance of tube from face 40 *centimetres*, current 55 *volts*, 4 *ampères*, pose one minute.

No. 2: fig. 2, distance of tube from face 40 *centimetres*, current 60 *volts*, 8 *ampères*, pose three minutes.

These two results are interesting and may be of use to others who intend to work with the rays, by showing the comparative results with varying conditions.

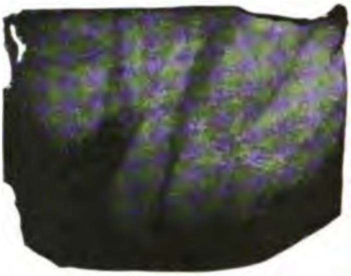

FIG. 1.

Better results as pictures might have resulted with longer poses, but as seen in the second *cliché*, the three minutes' pose injured the film considerably, and we only wanted a sufficiently clear result to show not details—but the existence of a tooth.

The canine in question is very plainly seen, and the experiment has effectually removed our doubts as to its existence, and at the same time all idea of operative treatment.

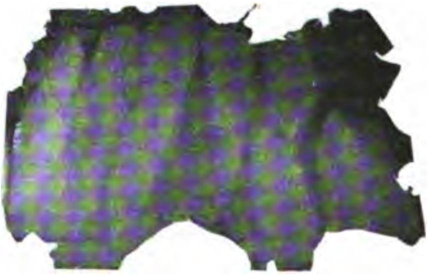

FIG. 2.

In radiographic operations in the mouth care should be taken that the films should not be too forcibly made to conform to the curve of the palate, as the sensitised surface is so fragile as to be easily detached from its gelatine base, causing distressing air bubbles and cracks.

When the films do stand away from the palate, even considerably, only a small obliquity would result, and this can easily be allowed for. In order to prevent the detrimental heating of the film, it has been proposed to let the subject hold a piece of ice in the mouth during the pose. This I do not think would be satisfactory, except in cases of very short pose, as the movements of deglutition caused by the melting of the ice would destroy the pose entirely. I think, unless specially prepared apparatus is at hand, it is better to ignore this factor of failure. Where possible, I intend in future to prepare a hollow metal splint with metal tubes attached, to which india-rubber tubing may be joined, through which a stream of iced water may be constantly passed while the film is in the mouth. Perhaps better still would be to fit an ordinary metal plate to which might be soldered, on the lingual surface, a series of coils of small metal tubing through which the iced water should circulate.

The coil used gave a 45 *centimetre* spark.

Some Weak Points in Dental Education.[1]

By J. DENNANT, L.D.S.Eng.

THE excellent paper on the subject of "Dental Education and Medical Qualifications," introduced at the Bath Meeting by Mr. David Headridge, merits thoughtful attention, for it is a subject of much interest to the rising members of our profession, and we cannot consider that it has been sufficiently discussed.

I trust that those who, like myself, were unable to be present will give due attention to that paper and the discussion, and assist in bringing about such a wise and mature judgment as shall be of lasting benefit to the profession.

Before dealing with the more especial subject of that paper I propose to refer very briefly to one or two weak points in our education, which I think are worthy of notice, inasmuch as we have the power to remedy them.

The Medical Council has provided a certain standard of education for our students, but leaving a freedom of choice as to where the pass shall be obtained:

In the admirable Educational Supplement to the September number of our JOURNAL you will find that the examinations most recommended are:—The Matriculation of the London University, the Oxford and Cambridge Local, and the *Special* Examination conducted by the College of Preceptors for medical students.

There can be no doubt that where possible the first should be selected, for, as the compiler of the supplement says, "It opens the doors to all professions, and if at any time during his pupilage or hospital career the student should forsake dentistry for any other branch of the healing art, it is open to him without returning to school books and passing another preliminary examination." University degrees are thus within reach.

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[1] Read at the Meeting of the Southern Counties Branch, October 29, 1898.

Students who live in large cities, and make a wise selection of the school where boys are trained for this examination, will find it possible perhaps to follow this advice, which is sound. But we have to deal with large numbers outside this class, who, living away from these centres, are sent to ordinary available schools, which do not rise to modern needs, and which do not turn out average boys at the age of 16 or 17 capable of passing the Matriculation Examination of the London University.

Into the reasons for this failure it is not my business to enter.

The portal to the medical and dental profession is one and the same, and here we differentiate. The medical profession for many years past has been very crowded. Ours has not been crowded. I mention this as a possible reason for some peculiarities which I am informed exist in the *Special* Medical Preliminary Examination in Arts, which do not appear in the ordinary educational examinations, that are calculated to obstruct the entrance and reduce the numbers. I simply refer to this by way of comment. The difficulties do not appear to lie in the stiffness of the papers set so much as in a certain kind of trickiness in them.

For instance, I was shown, not very long ago, papers of the College of Preceptors for this examination where, in the subject of spelling, a number of *catch* words were introduced, and in a footnote the candidate was informed that a pass in this subject was compulsory. This looks more like an attempt to prove what a candidate does *not* know, rather than a desire to ascertain what he *does*.

I am not an educationalist, and do not speak with authority, but from the facts which have come under my own observation I would suggest to fathers to avoid the *Special* Medical Preliminary Examination, and seek those of the Universities. The general standard will be a little higher, and more in accord with public school education, successful coaching will be more readily obtained, the papers may be relied on as being fair, and with the question of profession the examiners have nothing whatever to do. Their aim is simply to ascertain that the candidate is educated up to the required standard.

A second point in our training which I wish to notice is in connection with mechanics.

The primary difficulty is in obtaining good training at all, and will remain so until the consciences of those who take pupils and their money are so awakened as to provide them with efficient teaching. In large centres some of the difficulties may be met in the establishment of technical schools, on similar lines to those adopted in London by our zealous and indefatigable friend, Mr. Cunningham, where the system seems likely to produce capable and self-reliant workmen. But care will have to be exercised in keeping them well within the bounds of their legitimate purpose as training institutions. There is one drawback to them with regard to residence. Parents are naturally anxious to protect their sons in very youthful years from the temptations which are so often fatal to an unformed character, and for those residing in remote localities probably teaching close at home will be preferred. Into the details of that training I do not propose to enter. The point I wish earnestly to press is that when good teaching is secured the pupil should have at least three years of it. Less than that is insufficient. We all know that the value of the third year's work in comparison with the other two is enormous. Three years are required by the examining bodies, and in the Educational Supplement referred to are these sensible words:—"It is impossible to overrate the mechanical training, and three years is not too long to spend in a workshop to learn and master the many minutiæ of the mechanical art, without a thorough familiarity with which it is impossible to be a good dentist."

Now, what do we find? In localities where there are medical and dental schools the third year is sacrificed by allowing one year of the hospital and mechanical training to run concurrently. In the best interests of the pupil is this right?

But I am afraid the advocates of the Conjoint Diplomas have something to answer for here. They are aware that eight to nine years or more is an unreasonable time to require as the preliminary period to earning power. I know that it is suggested that a portion of the medical course may be left till a later period, to enable the qualified dentist to earn in the meantime. But in these cases it seems inconsistent to suggest that one year of mechanical training may be dropped, after the assertion that three full years are necessary. On page 6 of the Supplement are these words:—"In the case of qualified surgeons, evidence of a period not less than two, instead of three years, of such instruction will be sufficient." With regard to the dental pupil, I would say, on no account deprive him of his third year of training. His work at the dental school, wherein he has to apply his mechanical knowledge, will be far more efficiently performed after a full training.

It might be an encouragement to this training if a prize in dental mechanics was offered on entering the Hospital.

It is a matter for congratulation to note that the Medical Council has applied a corrective to this laxity with regard to mechanical training, by providing for the future that those who register as dental students after January 1, 1897, will have to pass an examination in mechanical dentistry and dental metallurgy.

I now proceed to touch upon the discussion at the Bath Meeting on "Dental Education and Medical Diplomas." In doing so, I will ask you to allow your minds to travel back with me some fifty years, to the period when there was no recognition of dentistry as a profession. Every dentist thought and acted for himself, and the only possible action for our pioneers of those days who wished to secure a professional standing was to take medical qualifications. As dentists, however, they stood in cold isolation.

Many amongst them realised the stagnation of that position, and, courageously led by Mr. Alderman Rymer and other ardent spirits, resolved on action and combination, which, after much discussion and differing opinion, eventually resulted in the formation of the Odontological Society in 1856, and the subsequent establishment of the dental diploma.

Many of the reputable men in practice without diplomas, together with others who had medical qualifications, rallied to that movement, and qualified *sine curriculo* and obtained the L.D.S. of England. This special diploma, in its infancy, necessarily did not carry very great weight with the medical profession, to which we had thus become allied—they simply regarded it as a step in the right direction—and those of our number who lived within reach of medical schools very wisely, as I think, seized their opportunities and qualified as surgeons, as their elders had done before them; and I am bound to say this action on their part has had an enormous influence in raising the general tone and advancing the truest interests of the dental profession. In process of time it was felt by many of us that the diploma, which hitherto had been optional, should become compulsory, and so, after much persistent and self-sacrificing effort on the part of many, the Act of Parliament which created us a closed profession was won just twenty years ago.

Hitherto we have had to submit to leading-strings, and looking back through past years I think we have submitted with good grace, having had confidence in our leaders; and what with capable leaders, and a faithful following, we have achieved a position of consolidation—a position in which we may fairly take our stand, and "contend for the faith that is in us." But with freedom comes responsibility; and we are now dealing with matters that require thoughtfulness and circumspection, together with a broad and liberal sentiment in regard to differing opinion. We must, however, get at these opinions, and see how far we can still further strengthen our professional interests. It is well that various views find scope and expression, and as we won our position as a *closed* profession by determined purpose and energy, so *we must see to it* that our education shall be on lines which perfectly meet our special needs.

We are *entitled* to a voice in the settlement of our own educational questions.

Twenty years of progress, and the steady tendency upwards of our education and examinations have done great things for us.

A study of the curricula now required before entering our profession must convince every thoughtful mind that we are well equipped, and entitled to rank as professional men. Mr. Headridge, with considerable force, asserts generally that our diploma is the only one of any value which proves its possessor to be the specially qualified man, entitled to the full confidence of the profession and the public. This will meet with universal approval. He rightly points out the anomalous position of certain hospitals in failing to take note of that fact, by omitting to include in the list of qualifications of their respective staffs the special dental diplomas.

This constitutes itself an injustice to our profession. It may have arisen more from oversight than deliberate intention, or from an entanglement in red tape which restricts all movement. I trust, however, that the attention of the respective boards of these institutions will be called to the matter, and that they may speedily bring themselves up to date in regard to securing the most efficient skill for their sufferers. I am not calling in question the skill of their present dental surgeons, but rather their omission to note the change which the Act of Parliament has wrought upon our specialty.

In discussing the question of additional or medical qualifications we must bear in mind the condition of chaos out of which they sprang as a necessity for the dentist of past days. A fashion was thus created which was inevitable, and as I think commendable, and we must not be surprised, therefore, that the possessors of medical diplomas advocate their adoption. But the times have greatly changed. For those of exceptional ability who have time and money at their disposal, they may still be considered desirable as broadening medical knowledge, and as giving greater facility (as things are at present) to the acquisition of hospital appointments, for, as Mr. Smith Turner says, "It is desirable that the teachers on the staff of a hospital should be considerably above the standard of the student, and above the standard to which the student was aspiring during his studentship." It is stated by others that it does not follow that the man with medical diplomas is thereby a better teacher or more expert manipulator. That is so; the art of imparting knowledge is a distinct and special gift. But we do not practise medicine, but a very distinct specialty; and I submit that were we creating an additional qualification for our especial needs, the medical are not the best qualifications that could be devised: they are ready to hand, but as means to an end—namely, giving the best study and training to the aspiring dentist, within a reasonable period—they are clumsy and inapt.

It is suggested to the student that in order to broaden his knowledge (chiefly of pathology and therapeutics) he should take the full medical course, which comes to this: that he must go off his special track to acquire a knowledge of gynæcology, forensic medicine, lunacy, and other subjects which have no relation to his specialty, but involve great sacrifice of time; and to enable him to do this he is permitted to sacrifice one year of mechanical training which he so specially needs. Surely this is the reverse of practical.

And then there is the inducement held out by some that a medical diploma confers a social elevation on the dentist; but in the presence of our curriculum of to-day that argument is weak and unworthy, and may, I think, be dismissed from the minds of our young men. A man is what he is, irrespective of this or that profession. He who has high ideals of life and duty, and the purpose to carry them out, with a free application of the golden rule, will not only elevate himself but his profession, and, supposing him to be capable, will probably achieve an honourable and successful career.

The time-worn reference to the manufacture of a silk purse will always apply. If the genuine article is wanted, due regard must be had to the raw material. In working out this problem of additional education great regard must be had to the special adaptation of means to the end. We have to think not of the exceptional man, but the average men who constitute the rank and file of any profession, and we must not impose on them too heavy a task.

A curriculum of five years suffices for law and medicine, and should be ample for dentistry, and I believe we may take it that the Medical Council think so too. Whatever follows must be left to the idiosyncrasies and opportunities of the individual. He may gain great benefit from post-graduate lectures, or he may travel for wider experience, or he may take a science degree, if he has had forethought to have matriculated at a University—in fact, there can be no limit to knowledge and attainment.

In years to come, probably a special additional qualification may be provided for the dentist, which may legitimately be called *higher* in the sense of giving further advancement in the cultivation and training of his specialty, which shall be to the L.D.S. diploma what the Fellowship is to the M.R.C.S., in which pathology, therapeutics, and science shall be broadened, and increased expertness in manipulation required. But I fear the time has not yet arrived for that development.

But let us notice this important fact, that we who are not educational experts consider it necessary to discuss these questions.

Is it not an evidence that the time has come when we should select a few of our number, who may be justly considered experts, to watch events and guide opinion in this most important subject. A Board of Education has been mentioned, but I should demur to that as being an unsuitable body, which would have a tendency to overlap and interfere with the work of the Medical Council. I believe our need will be best met by a standing Committee of Education within our Association, a committee so wisely selected, and so completely representative as to command our confidence, as well as that of the Medical Council, with whom that body may communicate for purposes of reference and consultation on any important point.

Mr. Smith Turner (in his admirable paper, "On Matters connected with the British Dental Association," which I strongly recommend to the attention of our newly qualified men), says: "The Association, with all its shortcomings, is the embodiment of the wisdom of the dental profession, and it has on its roll of members, both as regards ability and education, all that is best and noteworthy in our calling on both sides of the Tweed, and in the sister island."

From such a body, therefore, it should be possible to select this committee. Hitherto, I do not think we have wanted it; indeed, I suspect we have done better without it, for we have had influential volunteers who, in and out of season, have watched and guarded our interests in especial crises, and have rendered great service to the profession.

It is due, I suspect, to the untiring patience and wise action of these gentlemen—whose devotion we probably shall never fully know—that we are indebted for the last great professional advance in the appointment to the Medical Council of one of our most eminent brethren, in the person of Mr. Charles Tomes, who has the great advantage of commanding the entire confidence and esteem of our profession. We owe him the deepest gratitude for the surrender of himself for such important service, and we know that he will discharge his duties with great advantage to the profession.

Still we have a future before us. As time rolls by we mark its ravages in the loss of those who have accomplished so much for us —of necessity others of our leaders must follow—and it is our duty "to put our house in order." Even with our increased strength in having a special representative on the Medical Council we cannot but notice a certain element of weakness, inevitable in all things human—we are depending on the health and life of our one representative. May he be spared for many years to come.

Prudence and forethought suggest that we should provide for the future. An Educational Committee seems to me to meet the case. A wisely selected body of men should be a great source of strength to our representative on the Medical Council, whoever he may be.

I have been induced to speak because I felt that the discussion at Bath was neither sufficient nor conclusive. I trust we may have such a free expression of opinion throughout the Association, and in the pages of our Journal, that in the near future a satisfactory solution of the question may be found.

On Instruments for Filling Teeth with Cohesive Gold.[1]

By Wm. CASS GRAYSTON, L.D.S.I.

In making a gold filling in a hole cut in a block of ivory or other suitable substance it is not necessary to use a variety of instruments. The filling of the cavities in teeth in the mouth is a very different thing. The position of these cavities and the presence of adjacent teeth render them usually more or less difficult to reach.

In preparing the cavity we have to take into consideration the proximity of the pulp, the sensitiveness of the dentine, the strength (or weakness) of the walls, and also in front teeth the concealment of the fillings as far as possible. All this often adds to the difficulties of manipulation; and in making experiments out of the mouth, with the object of discovering what instruments give the best results, we must allow that any pluggers or methods that prove good must also be capable of satisfactory application to the various conditions met with in the mouth.

In making cohesive gold fillings two very important points must be considered, viz., cohesion or welding of the gold and its accurate adaptation to the cavity walls.

The whole operation, as far as manipulating the gold is concerned, turns on these two points. Ever since cohesive gold was introduced, the question of making thoroughly cohesive and at the same time perfectly adapted fillings has engaged the minds of many dentists. In attempting to solve this problem, it will be found that instruments play a very important part. This is shown by the enormous number that have been produced. The continual introduction of new designs also shows that the desired result has not been generally attained, or that it is attained with difficulty. One of the great obstacles to success is the prevalence of flat-faced pluggers.

The welding of gold is satisfactorily accomplished with these instruments, but the adaptation produced by them is usually imperfect. Unless an altogether unreasonable number of pluggers is used, fashioned into an almost bewildering variety of curves and sizes, it is impossible to always apply the face directly against the wall. The indirect application of a flat face to a curved or even a straight wall does not drive the gold into close contact.

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[1] Read at the Annual Meeting of the Midland Counties Branch, July 8, 1898.

Of course it is well known that beautiful and durable fillings are made with flat-faced instruments; but every man, no matter how skilful he may be, has his failures, and as long as imperviousness to moisture is considered an element of success, it is fair to presume that —all other things being equal—the man who makes the best adapted fillings will have the fewest failures.

In the endeavour to produce tight fillings some dentists have modified their instruments by rounding or convexing the packing surfaces, others have designed bulbous-ended pluggers, and others have combined these features in one instrument. Rubbing or burnishing the gold against the walls with smooth rounded pluggers, instead of using more or less direct force, has been tried. This rubbing or burnishing gives excellent results as far as adaptation is concerned. This was demonstrated by the Herbst method.

I presume, however, few, if any, dentists obtained sufficient cohesion by Herbst's system, for we hear nothing of it now.

I see no reason why well adapted and thoroughly cohesive fillings should not be made by rubbing or burnishing, and Dr. Libby has described a very original method of accomplishing this which he has successfully practised for twenty years.[1]

Dr. Bonwill has also for many years used smooth convex points and foot-pluggers with his mechanical mallet, and packs against the walls with a rubbing or sliding kind of blow which I believe he finds perfectly satisfactory. I have seen Dr. Bonwill fill a tooth and I have purchased the Libby instruments, but it seems to me that it would be necessary to have the filling of every kind of cavity actually demonstrated in the mouth before either of these systems could be fully grasped and successfully used as a general method of practice by the average operator.

The use of rounded pluggers does not necessarily call for any special manipulation, and as the sides as well as the point can be brought somewhat into play, this form certainly has a tendency to improve the adaptation, and when in addition to this the point is given a bulbous shape, the sides can be used with still greater satisfaction.

Amongst the sets of instruments that possess either the convex, the rounded or the bulbous form, or a combination of them, may be mentioned the Ladmore, the Husband and the Briggs in this country, and the Knowles, Harvard and Royce in America. I do not believe that the spreading of cohesive gold during condensation, said to be brought about by rounded pluggers, is of any benefit even if it really does take place, but to be able to pack and condense with lateral as well as direct force is an inestimable advantage, and it appears to me that the most useful instruments will be those which enable either direct or lateral force to be equally well applied in any direction, and of those I have mentioned the Royce pluggers seem to be the best in this respect.

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[1] *International Dental Journal,* June, 1895. *Dental Cosmos,* April, May and July, 1898.

Working on these lines, the ideal plugger should be one that enables the impact to be the same no matter what part of the condensing surface is used or what part of it is presented to the cavity walls. This brings us naturally to a consideration of the only shape that exactly fulfils these requirements, viz., the perfectly round or ball-ended plugger. It is rather strange that instruments of this description have not come into general use, for it is more than twenty years since this shape was advocated by Mr. Fletcher, of Warrington. In a letter to the *Dental Cosmos*, of February, 1878, he describes how he failed to make moisture-tight fillings with cohesive gold. He then tried a large number of other operators, and in the course of six months did not receive "one sound plug made with cohesive gold." He then discovered the fault was in the instruments having flat serrated faces. The use of round instruments "serrated on the face precisely like a rose drill," enabled him to readily make tight fillings. Mr. Fletcher also mentioned that the first of these instruments he made himself. He then goes on to say, "These experiments lasted over twelve months and were carried out in a careful and systematic way, beginning with failure and ending with success, and the whole details were published from time to time. The failures first recorded were not my own solely, but those of every operator I came in contact with who had sufficient interest in the matter to experiment."

I happened to see this letter about fourteen years ago, and wrote to Mr. Fletcher asking if these round pluggers were procurable at the Dental depôts. He replied they were, but I should have to go and select them myself.

I was unable to obtain any special instruments of the kind. The only ones I could purchase were the ordinary fine-cut plug-finishing hand burs, and I had the shanks of some of them bent at convenient angles for use as pluggers in the mouth.

I utterly failed to make satisfactory cohesive fillings with them. This I attribute to the angle at which the blades of burs are cut. I presume, therefore, it was specially made bur-like instruments and not burs themselves Mr. Fletcher used.

In the *Dental Cosmos* of September, 1896, Dr. Barker describes a set of ball-ended pluggers he had invented for hand pressure, and illustrations of them appeared in the advertisement columns of the *Cosmos* in the following March.

Dr. Barker's article is very interesting. He emphasises the point that, if a cavity is shaped with a round bur, why not fill it with pluggers of similar shape, and his instruments are slightly under the sizes of the Nos. ½, 1, 2, and 3 round burs in order that all grooves and cavities made with these burs may be readily entered and filled. This is, as far as I know, the first procurable set containing ball-ended or bur-like pluggers that has been produced.

About three years ago I had some smooth ball-ended burnishers made for me of suitable sizes and curves to be used as pluggers. In using them I found it was almost impossible to pack the gold with a level surface; there was a great strain on the hand to prevent slipping, the fillings took a very long time to make, and the result was poor. I then ground a flat surface on what may be called the principal working face, and at once found that the gold packed down easily and evenly. I then rounded off the edge of the flat surface so as to be able to rub the gold with any part of the plugger head. I also had similar instruments made for me with the flat surface finely serrated.

The general form of these pluggers was not unlike the Royce heads. I used both the smooth and the serrated form with satisfaction, and liked them better than any pluggers I had hitherto used.

On seeing the illustrations of the Barker set I at once ordered some of them, and found they were thoroughly practical instruments. It then occurred to me to try the effect of single-line serrations on the top or principal packing face of smooth ball-ended burnishers, like those I had originally failed with. I was pleased to find these serrations did away with the previous difficulties of manipulation. The gold could be readily packed down with a level surface, and also easily caught hold of and turned and folded in the cavity as desired. This, and to prevent slipping, is to my mind the only value of serrations. Those on the top answer the above requirements, and I prefer the sides to be smooth, as this allows freedom of manipulation in all directions and produces superior adaptation. The serrations on the top being cut in one direction only, enable this part of the head to be used, if desired, with either a forward or backward rub.

The cohesion that is produced with these instruments is thoroughly good. I originally used them solely with hand pressure. I now find they also make excellent mallet pluggers. The set, therefore, contains shapes that are adapted for both these methods of manipulating the gold, and will be found suitable for filling the majority of properly prepared cavities, although, of course, the curves and sizes might be multiplied and varied to any extent. Nos. 1 to 10 are mallet pluggers, Nos. 11 to 18 are for hand pressure. Nos. 1, 11 and 15 are ordinary fine retaining-point instruments with rounded ends and single-line serrations; these are for filling starting pits, fine grooves, &c. All the others have ball-ends.

In order to give some idea of the work that may be done with them, I have made two fillings in a piece of glass and submitted them to the ink test. No one who has not tried it can have any idea of the penetrating properties of ink, and how it will find out defects in the most careful work. No one who has not made numbers of experiments out of the mouth can realise the almost impossibility of making perfectly adapted cohesive fillings with any form of gold using ordinary pluggers and any method that can be practically used as routine practice in the mouth.

Hitherto the modified round burnishers I have described had given me better results than I had previously obtained. These ball-ended pluggers give me still better results, and I am therefore pleased to submit them to you. One of the fillings I have mentioned was made with hand-pressure, the other with a mallet. On finishing the mallet filling (which was inserted last) I noticed a small crack in the glass at either side of it. After immersing in ink I found the crack had extended to the other filling, and underneath both of them. You will notice the ink has penetrated the crack, followed it right down underneath the mallet filling without appearing to touch the gold in the least except along the line of the crack. By means of the crack the ink has also flowed underneath the hand-pressure filling, and passing upwards has stained the tin-foil base and marked the gold close to the tin. This little accident illustrates how ink will find its way into the most minute spaces. It has also caused the fillings to be subjected to a severe test, and the result is all the more gratifying. These fillings were made on bases of tin-foil owing to the difficulty of drilling starting pits and filling them without splitting the glass.

I trust I have made it clear that I am indebted to Mr. Fletcher for the idea of the ball-ended plugger; but as I never carried it out in its entirety until I had seen and used Dr. Barker's instruments, I gratefully acknowledge my indebtedness to him also.

A New Porcelain Inlay for Approximal Cavities.

By LOUIS JEFFERY, L.D.S.Eng.

Everyone is agreed as to the æsthetic advantages porcelain possesses as a filling material over gold and plastics. Indeed, if care be taken to ensure a good match, the inlay is next to invisible, and is infinitely to be preferred to any other stopping.

It unfortunately happens, however, that the cavities which are most easy to fill with porcelain are not those that most commonly present themselves for treatment. One large class in particular, that of approximal cavities between front teeth, is exceedingly difficult to fill; and to this class the method here suggested is peculiarly applicable.

This method consists in preparing together two contiguous cavities, and shaping them with a long tapered bur, and then inserting a double inlay of identical taper, thus practically filling two teeth at once.

The steps in the operation are as follow: The teeth are first separated as for gold filling, in order to allow of the use of discs for finishing. It is unnecessary to apply the dam, but a wedge of wood should be inserted above the cavities to steady the teeth while burring; the carious dentine is then removed, after which the double cavity is made roughly circular with rose-head burs, leaving the inner opening slightly smaller than the outer (fig. 1). The special bur (fig. 2) is then taken, and with a light touch-and-go motion the cavity is made absolutely true, so that if one of the inlay rods be inserted, it will be found to be in close contact with all edges.

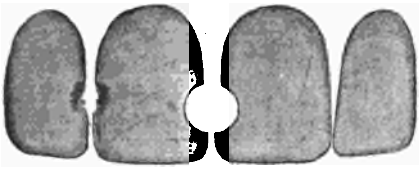

FIG. 1.

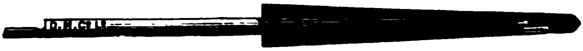

FIG. 2.

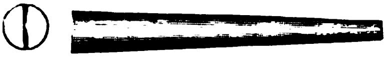

FIG. 3.

Place the rod (fig. 3) so as to bring the connecting cement vertically between the teeth, then mark the posterior edge of cavity on the rod with a finely pointed pencil, withdraw rod and cut off the surplus with a diamond disc.

Shape this end to be flush with teeth behind, and polish with fine-grained stones. At this stage it is well to finish also the approximal cervical edges, as these are more difficult of access when the inlays are fixed.

Place in position again and mark the front of rod where it leaves the teeth, and cut a deep notch all round with the disc, so as to ensure the rod breaking off after fixing without splintering. See that the cavities in the teeth are so shaped as to afford good anchorage to the cement, and in each inlay cut a large dove-tailed slot; these slots are of course in that side of inlay which lies against the teeth, and are to afford additional holdfast to the cement, which should be one that will permit of its being used in a very soft state to ensure all superfluous finding its way out.

The cavities are now to be well dried and a small portion of the cement smeared into them and on the rod filling up the dovetails; then press the inlays well home, being careful to get the posterior edges flush with the teeth. The surplus rod in front, which up to the present has been of use in handling the inlays, may now be snapped off and the cement allowed to harden thoroughly, if possible postponing the finishing till the next day.

Then pass a hot spatula between the inlays to remove the connecting cement and finish with fine stones and discs. Where a diamond disc cannot be used to remove any projecting edge or to finish the approximal surfaces, a very good substitute will be found in emery-paper discs kept well oiled.

It will be found advisable in preparing cavity to follow the line of decay, which in some cases runs in a slightly downward direction, and in others more in one tooth than its neighbour. A slight deviation, however, in any direction is of no consequence.

The success of the operation depends, of course, upon the inlays corresponding exactly with the bur in taper, and to ensure this being the case, the Dental Manufacturing Company have undertaken to supply both burs and inlay-rods of identical taper.

Abstracts and Translations.

On the Various Alterations of the Hard Tissues in the Lower Vertebrate Animals.

By Dr. Med. C. ROSE (Munich).

(*With* 28 *illustrations.*)

(Translated for this Journal from the *Anatomischer Anzeige.*)

DENTAL investigations in the last three decades ranged chiefly in the classes of the higher vertebrate animals. In this way there has been produced a certain one-sidedness in this investigation, which has not been of very fruitful influence as regards the region of general morphology.

The hope that the history of development would be capable of filling the great palæontological gap at the root of the mammalian species has been fulfilled only in a very limited measure. In the question of the doctrine of purely dental tissues the higher vertebrate animals do not offer the most favourable field for enquiry. In the mammals, the various connective hard tissues are well defined tissue-formations, which are *apparently* all directly opposed to each other. Only by great detours I have gained knowledge of the fact that in mammals also *the three hard tissue-formations, dentine, cement, and bone, are alterations only of one and the same kind of tissue, which is distinguished by this, that lime-salts are deposited in a basal substance containing numerous lime-giving fibrils.*

The fact that between bone and dentine there occur all possible transitions, has been recognised by Owen[1] already before the middle of this century on the basis of his investigations on the lower vertebrate animals. It was Owen, also, who first pointed out the fact that the microscopic structure of the teeth is a distinct, and in many cases a certain aid, in the classification of vertebrate animals. "I have stated that the teeth, by their microscopic structure as well as their more obvious characters, form important, if not essential aids to the classification of existing and the determination of extinct species of vertebrate animals."

Owen has employed as the basis of his microscopic investigations solely sections of fossil teeth or dry sections of teeth from living animals, and has too much neglected the investigation of the soft tissues of the teeth. Thus he naturally would often come to false conclusions. The various alterations of the dentine-like hard tissues Owen designated according to rough histological characteristics as *osteo-dentine*, *vaso-dentine*, and *plici-dentine*. Whereas the simple, dense dentine possesses only a single pulp-cavity, the vaso-dentine possesses numerous pulp-canals, sometimes running parallel, sometimes dichotomically ramified, sometimes in net-like branchings. In many cases the vaso-dentine is found deposited in the shape of "concentric lamellæ" right round the pulp canals. These latter then look very like the Haversian canals of the true bone. If the vaso-dentine contains besides the dentine canals, also bone corpuscles (Purkinjian cells), then arises the variety of the osteo-dentine. Plici-dentine is the folded dentine of the stegocephales and dentrodontes. In the year 1877, Chas. Tomes[2] showed that in various bony fishes, especially in the family of the Gadidæ, there occurs a peculiar dentine which alone deserves the designation of "vaso-dentine," and which is very different from Owen's vaso-dentine. It is a question of teeth with *single*, non-ramified pulp cavities, from whose edge the blood-vessels, in the shape of numerous anastomosing capillaries, penetrate into the dentine. These blood-vessel capillaries fill out the entire hollow space of their canals, and are not surrounded by pulp-tissue. In the dentine which Owen designated as vaso-dentine, the coarse canals, however, contain chiefly cellular pulp-tissue. Within this soft tissue are dispersed frequently large and small blood-vessels; they may, however, be also absent. In short, the coarse canals of Owen's vaso-dentine correspond completely with the Haversian canals of the bone. Tomes, therefore, proposes to call the hard tissue named vaso-dentine by Owen, in future, osteo-dentine, and to limit the expression vaso-dentine to the true vascular dentine of the Gadidæ, and so forth.

Tomes distinguishes, therefore:—(1) Hard, non-vascular dentine (mammals, &c.); (2) Vaso-dentine (Merlucius, shellfishes, &c.); (3) Plici-dentine (Labyrinthodon); (4) Osteo-dentine, with numerous pulp-canals.

While the three first varieties of dentine are formed by a cohering odontoblast layer, the osteo-dentine is formed exactly according to the manner of the bone tissue, from osteoblasts. Only the most external layer of this osteodentine is formed by odontoblasts. The development of the tissue of this osteodentine Tomes describes in the teeth of pike: "There is first formed from a cohering odontoblast layer a thin mantle of true dentine. Then from within the primitive dentine calcified osteo-dentine trabeculæ shoot through the whole mass of the formative pulp. The latter widely ramified canal system of the tooth of the pike owes its occurrence to the melting together of those trabeculæ leaving behind interstitial spaces."

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[1] Owen, "Odontography," London, 1840-45.

[2] C. Tomes "On the Structure and Development of Vascular Dentine," *Philosoph. Trans.*, vol. clxix., 1878.

Tomes was doubtless on the right track when he left it to histogenetic characteristics to furnish the manner of designation for the various alterations of the dentine. Only these histogenetic characteristics must be still capable of clear recognition also on the completed tissue. But now, if Tomes lays down as the distinguishing characteristic between dentine and osteo-dentine, that the former is formed by odontoblasts and the latter by osteoblasts, these conceptions do not assist us very much. Corresponding to the discoveries in mammals, hitherto odontoblasts have been designated as high, cylindrical, epithelium-like cells, which lie closely packed against each other; osteoblasts, however, as low, spindle-shaped or polygonal cells, which lie side by side, less densely packed.

If we descend, however, to the vertebrate animals on a lower stage, we there find frequently enough true dentine-forming cells, which in their appearance fully resemble the bone-forming cells. Between both cell-forms there occur all kinds of transitions.

With the exception of Tomes no investigator has so far occupied himself with the *history of the development* of osteo-dentine and vaso-dentine. Most investigators hesitated to designate a tissue as osteo-dentine in which no bone corpuscles occur. Tomes' explanations in reference to the origin from odontoblasts or osteoblasts were insufficient. In short, the new Tomesian mode of designation did not find support; the older Owensorian designation maintained the field after as before. Sternfield,[1] indeed, believed that on the basis of his rather one-sided investigation of the teeth of the pike he could refute Tomes, and did not even trouble to become acquainted with the "true vaso-dentine" newly discovered by this proved investigator.

I myself only saw Tomes' essay after the major portion of the following investigations had been concluded. As has been already mentioned above, in the lower vertebrate animals it is possible to demonstrate all kinds of transitions between the various connective hard tissues, especially between dentine and bone. For this reason it is also especially difficult to fix sharp, *definite*, distinguishing characteristics between the separate divisions. Every division of the hard tissues in question will always offer more or less arbitrary limits. In *each* kind of the divisions there are found tissue-forms, which cannot be ranged either in one or in the other sub-division. Nevertheless, it would be expedient to attempt as far as possible a natural division of the separate connective hard tissues. Is not the world's history, which pursues its course uninterruptedly, for reasons of fitness divided into three arbitrarily limited subdivisions?

The microscopical examination of the teeth and bones in the lower vertebrate animals rightly demands the attention of every investigator who concerns himself with the family history of the vertebrate animals. Dentine and bone-formations are mostly the only remnants which afford us any knowledge of the presence of a rich world of vertebrate animals in former epochs. It will hardly be possible to further brighten the darkness which has hitherto prevailed as regards the pre-silurian ancestors of the vertebrate animals, which did not as yet possess hard tissue formations of any sort.

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[1] *Ueber die Structur des Hechtzalmes, insbesondere die des vasodentine* (Owen). *Arch. f. Mikroskop. Anatomie*, Bd. xx., 1881.

Happily the comparative history of development teaches that the hard tissues appeared moderately early in the majority of the vertebrate animals. Hence, on the basis of the hard tissues which have been preserved, we are able to descend to a considerable depth on the real palæontological tree of genealogy of the vertebrate animals.

In which layers do the oldest remains of vertebrate animals appear, and how do they look? Doubtless *certain* remains of vertebrate animals are already found in the upper silurian layers of England (Norton, near Ludnow), the Island of Gotland (Sweden), and the Island of Oesel (Russian Baltic provinces). These remains consist of teeth, scales, spikes of fins, and shin-bones. Both in their external form, as in their microscopic structure, there is already seen quite an astonishing variety. Despite the works of Pander[1] and Rohon[2] the plentitude of forms of the upper silurian fossil-fish is certainly not yet exhausted by a long way, and renewed extensive investigations are urgently required. Owing to the extreme smallness of the upper silurian fossil-fish their investigation is made uncommonly difficult. Most of the formations in question only exhibit their pronounced characteristics in thin sections. The microscopic structure of these fossil-fish is, however, not uniformly well preserved. Side by side with excellently preserved scales are found some whose microscopic structure is considerably covered over and altered by subsequent deposition of black iron-combinations. In the explanation of the tissue-structure of such sections one cannot be too careful. In consequence of the amiability of the Academician, Herr F. Schmidt, I was permitted to re-examine Rohon's sections, which are deposited in the mineralogical museum of the Imperial Academy of Sciences in St. Petersburg. I likewise received from St. Petersburg varicus raw materials from Oesel for my own investigation.

Pander at one time considered the lower silurian Conodontes, *i.e.*, small, partly single-pointed and partly many-pointed tooth-like formations to be fish-teeth. V. Zittel and Rohon[3] later on demonstrated that the Conodontes represent skeletons of the jaws of Annelides. Latterly Rohon[4] has found among the Conodontes material of the St. Petersburg collections several pieces which he holds to be true fish-teeth. Further researches will have to decide if the lower silurian formations designated as Archodus and Palæodus are really vertebrate animal formations. As regards the vertebrate animal remains of Canon City in Colorado, which have been designated as "lower silurian," the last word has not been said. Jækel holds the layers in question to be not lower silurian, but displaced Devonian.

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[1] Pander, *Monographie der fossilen Fische des silurischen systems des russisch-baltischen Gouvernments.* St. Petersburg, 1856.

[2] Rohon, *Die obersilurischen Fische von Oesel, Memoires de l'Acadêmie Imperiale des Sciences de St. Petersburg.* 1892, 1893.

[3] Von Zittel and Rohon, *Ueber Conodontes. Sitzungsber. der Kgl. bayr. Akademie der Wissenschaften*, 1886.

[4] Rohon, *Ueber Untorsilurische Fische. Bullet. de l'Acad. Imp. de St. Petersburg*, 1889.

For the present, therefore, we must continue to accept the upper silurian fossil-fish mentioned as the certain recognised oldest vertebrate animal remains. *Already among these oldest vertebrate animal formations do we meet with nearly all the alterations hitherto known of the connective hard tissue formations.* Only the true Tomesian vaso-dentine could not so far be demonstrated to exist. As regards the frequency of occurrence, the dentine-like hard tissues preponderate by far over the bone-like. The numerously occurring scales of the shark especially, which are known under the names of Thelolepis and Cœlolepis, consist exclusively or almost exclusively of true dentine. In the composite tissues also, the most superficial first formed part consists constantly of dentine-like tissue. As the comparative history of development also teaches that the bone always appears later than the dentine, we may draw from this the conclusion that *true dentine in fact represents the oldest hard tissue of the vertebrate animals.* Certainly the formation of true bone tissue in certain families of the vertebrate animals appears to have directly followed the appearance of the dentine.

Now what is the distinction between the individual varieties of the connective hard tissue? The investigations in the developmental history during the last few years have furnished the proof, that as regards the true dentine of the vertebrate animals the so-called *epithelial sheath* is of essential importance. Formerly it was believed that the sole object of the epithelial portion of the tooth rudiments was the secretion of the enamel. One spoke therefore of an "enamel organ." Through numerous recent investigations the fact has been established, however, that entirely enamelless teeth (for instance, those of the Edentates) and enamelless tooth portions are always formed within an epithelial covering. Hence came the conclusion, that *a chief task of the epithelial mantle of the tooth rudiments consists of this, to prepare the form for the future shape of the tooth.* Therefore we designate now according to O. Hertwig's[1] method the epithelial portion of the tooth rudiments as "epithelium sheath." This sheath secretes on its lower surface a *cuticula*, which possesses all the chemical characteristics of the so-called "enamel membrane," and which represents as it were a border wall, from whence the one-sided growth of the true dentine takes its origin. The capacity of the form-giving epithelium sheath to secrete at certain points of the tooth real enamel, and thus contemporaneously to act as "*enamel organ*," is a quality acquired only later, and a more secondary one.

After the presence, without exception, of an epithelial sheath had been proved in *all* hard tissues consisting of true dentine, the further conclusion was drawn that *true dentine with a single pulp cavity can only make its exit from the internal surface of an epithelial sheath.* This true dentine, therefore, if subsequent appearances of resorption had not occurred, is always in an outward direction bordered by a smooth surface. The dentine canals grow from this smooth external surface in a partial direction towards the single pulp-cavity. This true dentine is predominant in the higher vertebrate animals. But the upper silurian shark scales (fig. 1) also consists of true dentine.

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[1] O. Hertwig, *Ueber den Bau und die Entwickelung der Placoidschuppen und der Zahne der Selachier. Jen. Zeitschr. f. Naturw.*, Bd. viii., 1874.

The same, *Ueber das Zahnsystem der Amphibien. Arch. f. Mikrosk. Anatomie*, 1874.

In consequence of irregular growth during the development, the lime-producing fibrils are sometimes more dense, and sometimes less densely collected in the basal substance of all connective hard tissue formations. The places where the fibrils are more densely collected appear under the microscope with strongly subdued light as containing soft stripings. These are the so-called *layer-stripes* or *contour lines*. By the course of these layer-stripes one is able to follow in the most exact manner the developmental-historical growth of the completely formed hard tissues. The layer-stripes are quite independent of the protoplasmic enclosures of the hard tissues. They are found also in the non-enclosed dentine and in the osteoid tissue. From the course of the layer stripes in fig. 1, one is able to conclude with certainty that in the fossil Thelolepis-scale the original epithelium-sheath on both sides reached up to the border marked with E.Sch. In short, *the presence of the layer-stripes makes it possible for us to utilise developmental historical conditions of growth as decisive, distinguishing characteristics between the individual divisions of the completed hard tissues.*

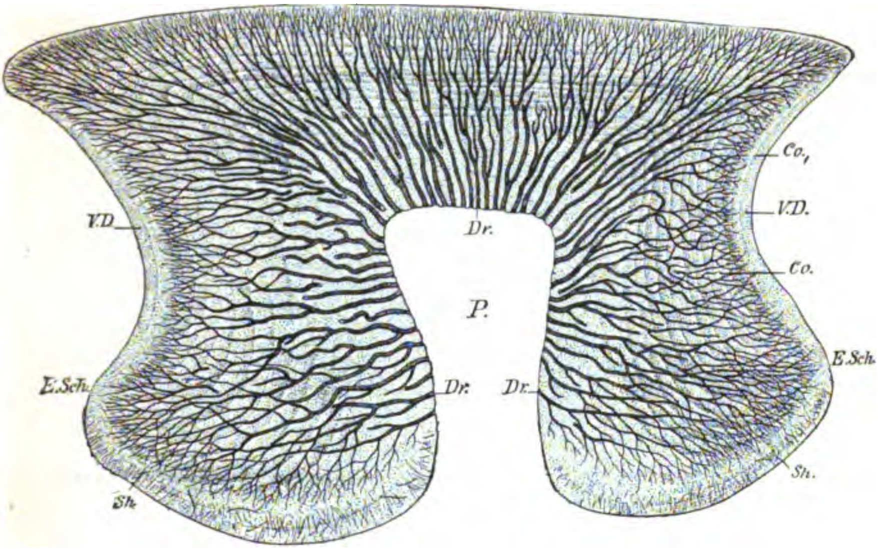

FIG. 1.—PLACOID SCALES OF THELOLEPIS.

P., pulp cavity. Dr., dentinal tubes. V.D., vitro-dentine. Co., contour line in the tubular dentine. Co.$_1$, contour line in the non-tubular dentine. E.Sch., former border of the epithelium sheath. Sh., Sharpey's fibres of the rudimentary tooth-germ. × 180.

True dentine usually contains the known dentine canals, in which the protoplasmic shoots of the odontoblasts disperse. The latter serve as

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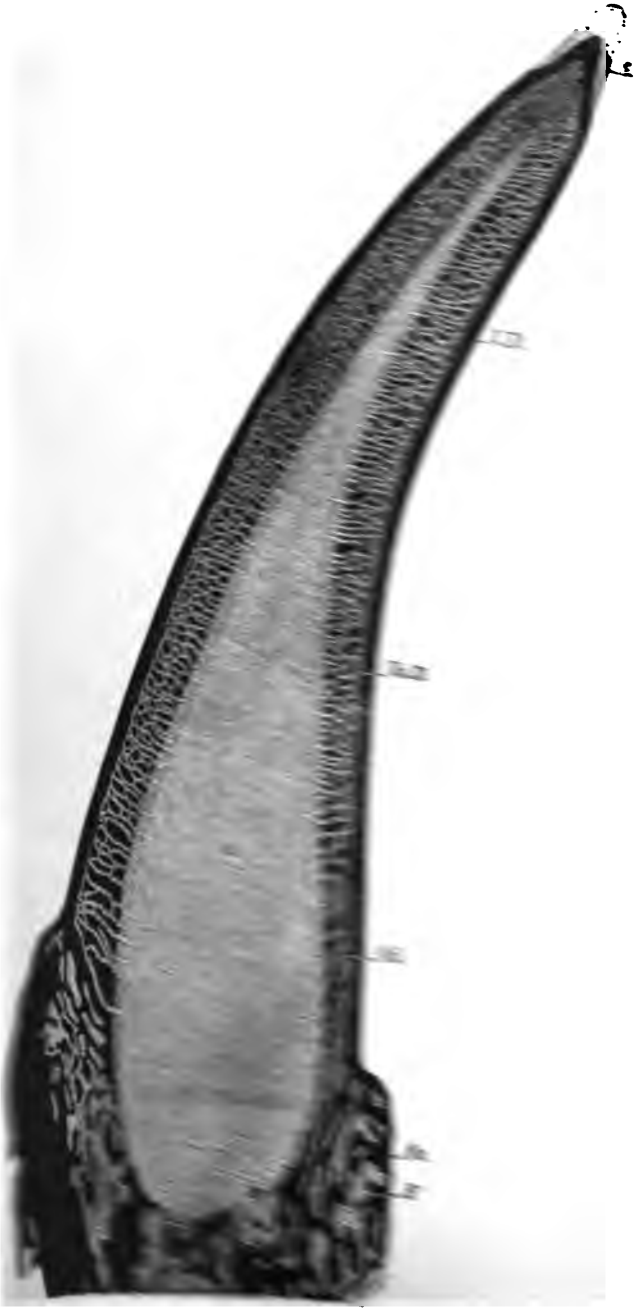

[illegible] METHOD
[illegible]
[illegible] tooth socket.
[illegible] odontoblasts.

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[1] O. Hertwig, *U*
Zahne der Selachier.

The same, *Ueber d*
1874.

nutritive organs. The dentine canals may, however, also be missing. Then arises the *non-enclosed dentine* or *vitro-dentine.* A third sub-division of the true dentine forms the remarkable tissue which Tomes first describes in Gadides, &c., and which, entirely in accord with this investigator, I should designate *exclusively* as *vascular dentine* or *vaso-dentine.*

Fig. 2 shows this tissue in pronounced development. Dentine canals do not occur in it. The external mantle of the dentine consists of vitro-dentine, V.D. (in the illustration maintained pure black). The inner principal mass of the tubeless dentine, on the other hand, is overrun by numerous blood-vessel capillaries, which stream from the single central pulp cavity right through the odontoblast stratum into the dentine. The tunica intima of these blood capillaries is directly bordered by the dentine. The capillaries are hardly ever clothed by remnants of the pulp-tissue, but they fill out their hollow spaces completely. The dentine in the immediate vicinity of the capillaries is not completely calcified, but it possesses all the qualities of the so-called Neumann's sheaths in true tubular dentine. The course of the capillaries of the vaso-dentine in crescentic form corresponds fully to the direction of the course which the extreme external capillaries take in the tooth marrow of young

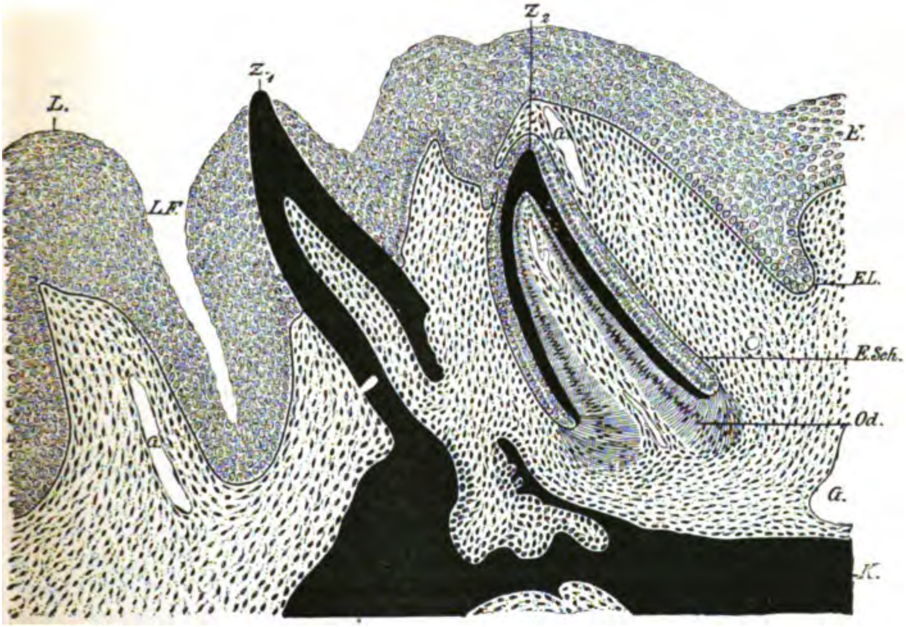

FIG. 3.—GADUS MORRHUA (HADDOCK). YOUNG ANIMAL OF 10 CM. BODY LENGTH. SAGITTAL SECTION THROUGH THE LOWER JAW.

Z.$_1$, functional tooth, on whose base resorption has already begun. Z.$_2$, permanent tooth. E.L., permanent tooth-ridge. E.Sch., epithelium sheath of the permanent tooth. Od., long odontoblasts of the tooth base. K., maxillary bone. G., vessel. E., maxillary epithelium. L., lip. L.F., lip-furrow. × 185.

tooth rudiments which are in course of development. These capillaries have not constantly retired before the dentine growing inwards, but they have been enclosed by it and serve as the nourishment organs of the completed vaso-dentine.

Now how is the appearance of this peculiar vascular dentine in certain families of the osseous fishes to be explained? These fishes possess the unmistakable quality, by retro-formation of the canals of the tubular dentine, to form unenclosed vitro-dentine. Thus the small teeth of young haddocks (Gadus morrhua) consist of vitro-dentine only, with distinct strata stripes. The latter could not be reproduced in fig. 3. A remarkable appearance is the occurrence of extraordinarily long and thin odontoblasts in the young tooth rudiments of the Gadidæ. These cells are so thin and slender, and are so rarely obtained in exact longitudinal section, that with preparation not well conserved one may be easily tempted to take the cells for connective tissue bundles. In fact, Mummery[1] has fallen into this error and has illustrated the odontoblasts of Merlucius as connective tissue bundles on the basis of uncoloured sections. If, however, fresh material, well conserved in Müller's fluid and coloured, be examined, the cell-nature of the formations in question becomes clearly apparent. The older the tooth rudiments become, the more do the odontoblasts decrease in height.

Thus it is seen in fig. 3 that the odontoblasts in the developmentally older point of the pulp ($Z._2$) are only $\frac{1}{4}$—$\frac{1}{3}$ as long as the like cells at the tooth base. In the older tooth $Z._1$ which is in function, whose absorption has already begun, the odontoblasts form cells not particularly specialised.

(To be continued.)

On the Cause of So-Called Phosphorous Necrosis of the Jaw in Match-Workers.

By RALPH STOCKMAN, M.D., F.R.C.P.E.
PROFESSOR OF MATERIA MEDICA IN THE UNIVERSITY OF GLASGOW.

HISTORICAL SUMMARY.

PHOSPHORUS was first used in the manufacture of matches in 1833, at Vienna. Shortly after its introduction, and ever since, cases of necrosis of the bones of the upper and lower jaws have occurred among the workpeople employed in match factories. The condition was first described by Lorimer, who, between the years 1839 and 1845, saw 9 cases in Vienna, but immediately after cases were also reported in Nürnburg, Strassburg, Berlin, Lyons, Paris, Manchester, and London, as having occurred among the workers in match factories. Improvements in ventilation and in manufacturing machinery have greatly diminished its frequency, but it has continued to be not uncommon, and is widely recognised as a risk incurred by those who work with phosphorus. The clinical symptoms have been fully described by Lorimer, Heyfelder, von Bibra, and Geist, Harrison, Roussel, and others. In addition to their more systematic descriptions many isolated cases have been put on record by different writers, and all agree substantially in their main features.

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[1] Mummery, "Some Points in the Structure and Development of Dentine." *Philosoph. Trans. Roy. Soc. of London*, 1892.

SYMPTOMS AND COURSE.

The disease may begin after a few weeks or months, or many years' employment in the factory, generally with toothache, and always in a carious tooth or in the socket of one which has been extracted. Its further progress may be very slow, the pain and inflammation remaining slight, and confined to the immediate area of the one tooth. Sometimes, however, it runs a much more acute course, and may involve a large part of the jaw in a few weeks or months. In either case, when the process once begins to extend, the gum becomes red, tense, and swollen, and the swelling may then resolve itself into a circumscribed phlegmon, or may form a large tumour which spreads to the neighbouring soft parts, causing a swollen appearance of the lips and cheeks, or the regions under the lower jaw. The abscess then bursts or is opened, when it discharges stinking pus, and in its place an ulcer quickly forms, which lays bare the bone. The discharge is greenish, greyish or sanious, and contains a quantity of bony detritus. The teeth become loose and fall out at the diseased part; the gum becomes livid, and fistulous openings form in it from which pus discharges continuously into the mouth, or the pus may burrow and discharge externally through the skin of the face by several small openings. On probing these openings, bare bone can be felt. Later the gum disappears, and exposes the alveolar arch and other parts of the jaw, the bare bone having a brownish or dirty-grey colour; its surface is roughened and eroded, evidently in a condition of caries, and the pus can be seen oozing from its surface. The salivary and neighbouring lymph glands are hard and swollen. Larger or smaller portions of the jaw-bone then become necrosed, in process of time get loosened and detached from the rest, and ultimately exfoliate or can be easily removed with forceps. There is great difficulty in chewing and swallowing, and the patient has to live on soft food and liquids. The process may last for months or years, and may be entirely confined to the upper or lower jaw, the general health remaining fairly good. It may spread from one part of the jaw to another, or from one jaw to the other.

In the most favourable cases, after portions of the jaw have necrosed and been removed, the whole process may cease, new bone is formed from the periosteum, and cicatrisation of the soft parts takes place. But there is always more or less deformity, sometimes very slight, sometimes very severe, and the alveolar arch is never restored.

In other cases the disease, instead of healing, spreads locally, involving more bone, the patient becomes cachectic, feverish, and wasted, and ultimately dies of pulmonary phthisis, general tuberculosis, or some other tuberculous affection. A few cases run a very acute course, both as regards the local and general conditions, there being very great destruction of bone and very severe systemic disturbance death occurring in two or three months.

PATHOLOGY.

As regards the bone, the condition is one of cario-necrosis; there is chronic ostitis and periostitis, and it differs in no respect from the same lesion as seen in other bones and from various causes.

It has long been held that this necrosis, or cario-necrosis as it should rather be termed, is due to a specific action of phosphorous fumes on the bone, these being supposed to cause a peculiar and specific kind of inflammation. If one considers, however, the whole circumstances and the clinical histories of individual cases, the conclusion must inevitably be drawn that the process is due to infection from a micro-organism. Phosphorous fumes consist of phosphorous anhydride (P_4O_6) chiefly, with some phosphoric anhydride (P_2O_5), and during the oxidation either ozone or hydrogen peroxide is also formed in small amount. From what we know of suppurative processes, it is inconceivable that any of these bodies can cause a chronic purulent inflammation of bone such as has just been described as occurring in "phossy jaw."

Acting on this idea, I applied to Mr. Cornelius E. Garman, surgeon to Messrs. Bryant and May's match factory, who very kindly has supplied me with specimens of pus from six cases of phosphorous necrosis of the jaw under his care at the present time. In every case the pus was very fœtid and was greenish, or brownish, or greyish in colour. Attempts to make cultivations from the pus revealed the presence of staphylococcus albus, streptococci, and numerous other organisms, none of which could reasonably be regarded as the cause of the cario-necrosis.

PRESENCE OF TUBERCLE BACILLI.

It is well known that tubercle bacilli cannot be cultivated from pus, but on staining cover-glass preparations of the pus by the Ziehl-Neelsen method the bacillus tuberculosis was found in every case. As is usual in the discharge from tuberculous bone, the organisms were few in number and difficult to find except on the closest and most careful examination. On centrifuging the pus and then examining the sediment they were more easily detected. Sometimes several cover-glasses had to be examined before any of the organisms were seen. Most of the bacilli were perfectly typical in appearance, others were small and thick, resembling the forms usually found in the urine. They were scattered about singly, or in small clumps, or in groups of one or several dozens.

Inoculation of guinea-pigs with the pus did not infect these animals with tubercle, and hence the bacilli must be regarded as being either dead or as having almost entirely lost their infective virulence. It is now proved, however, that tubercle bacilli in this condition are quite capable of setting up and maintaining local suppuration and irritation for an indefinite time. Besides, they are assisted by the action of the pyogenic organisms with which the pus swarmed. The condition of the tubercle bacilli is probably to be explained by the fact that all the cases which I have had an opportunity of examining are recovering, and have been under treatment for very long periods with antiseptic mouth washes, &c. The condition generally is exactly similar to what is seen in tuberculosis of the jaw in cattle, and in tuberculous disease of other bones in man. The presence of the tubercle bacillus can hardly be regarded as fortuitous, seeing that it was found in every case, and its presence is held, so far as our present knowledge goes at least, to be proof positive of the tuberculous origin of any lesion.

If further proof of the tuberculous nature of the jaw disease were wanted, it is to be found in looking through the accounts of *post-mortem* examinations of fatal cases. In most cases death occurs from tuberculosis of the lungs. Whether this is due to infection from the jaw tubercle, or whether the phosphorous fumes damage the lungs, and make them more susceptible to direct infection, I am unable to say.

General tuberculosis is also not uncommon, while tubercle of the abdominal glands, and tuberculous ulcers of the intestine, are almost invariable, these last arising certainly from infection by swallowing the pus. Abscess in the brain, purulent pleurisy and tuberculous meningitis are also occasional causes of death. Hectic fever and emaciation always accompany fatal cases.

The part which the phosphorus plays in the process is not far to seek. The acid fumes (phosphorus and phosphoric acids) produced by its oxidation in the air have no effect on bone covered by gum or mucous membrane ; but when they can penetrate to the bone directly through the aperture left by a decayed or extracted tooth or any injury, they erode the bone, weaken its nutrition and resisting power at this small spot, and make it susceptible to infection by tubercle bacilli. The bacilli having made good their foothold, spread slowly in some cases and with disastrous rapidity in others. I think I am correct in saying that the great majority of workers in match factories have carious teeth, and yet only a very small proportion of them become affected with cario-necrosis of the jaw—namely, those of them who, owing to their home surroundings or to individual predisposition, become readily infected by the tubercle bacillus. V. Bibra and Geist state that the disease may occur weeks or months after the patient has left the match factory, and in one of their reported cases the woman had actually been eighteen months away from the work before any symptoms began. This in itself is almost complete proof that the phosphorous fumes are only a predisposing cause, and that the disease depends on subsequent infection. It is well known that v. Bibra and Geist, and later Wegner, produced suppuration and cario-necrosis in the jaws of rabbits by injuring the periosteum and then exposing the animals to phosphorous fumes (on uninjured rabbits the fumes had no effect). The rabbits all died in from five to ten weeks' time and were found to have tubercle of the lungs. I experimented in a different way, as it is evident that these animals had become rapidly infected from the laboratory cages in which they were kept. I got new wooden hutches made, placed them in a room where animals had not been previously kept, and kept them scrupulously clean. In the hutches pieces of phosphorus were placed in a mortar on damp earth (to avoid risk of fire) in such quantity that the cages were constantly filled with the fumes in much greater amount than can possibly occur in any factory. Four rabbits were then placed in the hutches after the periosteum and gum had been removed over a considerable portion of the upper and lower jaws in each. In one a tooth was loosened in addition, the operations being all performed under chloroform. They seemed to suffer no inconvenience either from the operation or from living in the phosphorous-fume atmosphere. It has been very difficult to prevent the gum growing over the exposed bone, and after many weeks there is not the slightest trace of any jaw affection. The exposed surface of bone has become slightly eroded and rough, but whether from the action of the acid fumes or from that of the bacilli of the mouth it is impossible to decide.

TREATMENT.

The treatment hitherto pursued in cases of phosphorous jaw has been to wash out the mouth with deodorant and antiseptic lotions, and wait until the necrosed pieces of bone come away. This is always extremely tedious, and may last many years. In extreme cases the whole lower jaw, or half of it, or parts of the upper jaw have been excised. Sometimes by so doing the whole of the infected portion may be removed, but frequently the disease has again broken out in a neighbouring part of the bone. It is evident, however, that early operative interference is called for, and that the original tuberculous focus at the root of the tooth should be removed at once.

PROPHYLAXIS.

As regards prophylaxis, there is absolutely no risk so long as the bone remains protected by gum, and even when carious teeth are present the entrance of the bacilli can be prevented by careful stopping. Efficient ventilation of the workshop will dilute the acid fumes arising from the phosphorus, and make them less active in injuring exposed bone. The infection with the tubercle bacilli is a matter quite apart from the factories, and cannot be controlled either by State regulations or workshop rules. It is acquired—as other tuberculous affections are acquired—by certain persons and not by others, and owing to the present all-pervading frequency of the organism persons with exposed bone eroded by acid fumes, and living under bad hygienic conditions, are very apt to become infected. Whether the fumes also weaken the mucous membrane of the lung alveoli and predispose to pulmonary phthisis among persons employed in match factories, I have no information which will enable me to decide. It is just possible that actinomyces or other organisms may also occasionally lodge in the weakened bone, and lead to caries and necrosis, but in those cases which I have hitherto examined I have only found the tubercle bacillus.

My great difficulty all along has been to procure a sufficient amount of clinical material to enable me to make my observations more extensive and precise, and I shall be greatly indebted if any surgeon who has cases under his care, and more especially recent ones, will supply me with specimens of the discharge.

In conclusion, I have to express my great indebtedness to Mr. Garman and his son for a great deal of information and assistance, as without their active help and co-operation I could not have made these observations.—*British Medical Journal.*

Dental Surgery and the Practice of Dentistry.

THE past year will always be memorable in the annals of dental surgery from the fact that for the first time in the history of the profession a dental surgeon obtained a seat on the General Medical Council. The British Dental Association for some years has been bringing the claims of dentists for representation on the Council before the proper authorities, and so persistent have been the efforts and so reasonable the request that it is not unnatural that Mr. Charles Tomes should have been appointed to the vacancy caused by the death of Sir Richard Quain.

During the year several papers have been published which have advanced the knowledge of dental pathology. Dr. Znamensky of Moscow, in a communication to the January and February issues of the JOURNAL OF THE BRITISH DENTAL ASSOCIATION, recounted some interesting experimental investigations he had made on the pathology of erosion. Mr. Storer Bennett endeavoured to repeat these experiments, but in the majority of instances he was unable to achieve the same results as Dr. Znamensky. Although the results obtained by these investigators are so different, the manner in which the subject was approached is undoubtedly excellent, and it is quite possible that by further repetition, modification, and development of the experiments in various ways substantial results may be obtained. A paper from the pen of Mr. A. S. Underwood on Erosion has also appeared, and he has described certain minute defects in the structure of the enamel of teeth attacked by erosion. The pathology of dental cysts has been considerably advanced by the researches of Mr. J. G. Turner. From a thorough microscopical examination of many specimens he has been able to show pretty definitely the development of these cysts from aberrant masses of epithelium met with in the alveolo-dental ligament. He has also demonstrated that the exciting cause which starts activity in these epithelial masses is septic matter from pulpless teeth. Mr. Turner in the same paper describes three specimens of gingival cysts, and suggested that in all probability they originated from the masses of epithelium found in the substance of the gum and known as "glands of Serres." Mr. Kenneth Goadby in a paper read before the Odontological Society has added to the knowledge of micro-organisms of the mouth, and Mr. Dencer Whittles claims to have found a micro-organism which he considers the cause of pyorrhœa alveolaris, but the details so far given by him are somewhat meagre.

A paper by Mr. Hopewell Smith has thrown a good deal of fresh light on the healing processes of the dental pulp, and an easy and exact way of estimating the amount of potassium sulpho-cyanide in the saliva has been introduced by Mr. H. Albert. Ankylosis of Teeth to the Jaws formed the subject of a paper by Mr. Storer Bennett, and from the illustrations given there can be no doubt that under certain conditions ankylosis of teeth to the jaws may take place.

No special advance has been made in operative dental surgery. The use of crowns as a method of treating teeth much affected by caries has come into increased favour, while bridge work is being adopted with more caution and judgment. The conservative treatment of the pulp has attracted a fair share of attention due to the introduction of various preparations claiming to have as their active ingredient formalin. A plan by which the tedious processes of cleansing and filling pulp canals could be overcome would be a great step in advance not only to the patient but also to the operator, and although the methods of mummifying or preserving pulps have not proved constantly successful the prospect certainly seems encouraging, and with an increased knowledge of the pathology of the pulp and the actions of drugs on that tissue a satisfactory plan will no doubt be evolved in the near future.

The use of oxy-phosphate of zinc with amalgam has come into more general use, and the experience of practice shows that it is possible to insert reliable fillings by this method. The prolongation of nitrous oxide anæsthesia has attracted much attention, and the methods advocated by Dr. McCardie, Mr. H. Hilliard, and Mr. A. Colman seem likely to supplant to a great extent the use of ether for dental operations. A smaller number of deaths has been recorded from chloroform used as an anæsthetic in dental practice. This is satisfactory, and it is to be hoped that in the near future its use will be abandoned except under very exceptional circumstances.

The British Dental Association has continued to exert its beneficial influence on the profession and also on the public. The annual meeting at Bath was most successful, the papers read and demonstrations given being interesting and valuable. Under the name of "South Wales and Monmouthshire" a new branch has been added, and the quite recently formed School Dentists' Society may be also regarded as an offshoot of the Association.

Fair activity has marked the dental literary world. The fifth edition of "Tomes' Dental Anatomy" has appeared, and an excellent little work on Dental Metallurgy by Mr. Ernest A. Smith has been published. Mr. E. W. Roughton has written a useful manual on Oral Surgery, while Dr. G. Black's well-known work on the Human Teeth has reached a further edition. Other books worthy of mention are *L'Art Dentaire en Médecine Légale*, by Dr. Oscar Amædo and Dr. W. C. Barrett's "Oral Pathology and Practice."

An interesting event in the social world has been the golden wedding of Sir Edwin and Lady Saunders, and the occasion was taken by a few old friends for presenting an address in remembrance of the happy occasion.

The death roll is happily a small one. It includes Mr. Sidney Wormald, one of the pioneers of dental reform, Mr. J. Main Nicol of Leeds, and Mr. McAdam of Hereford.—*Lancet.*

Delicacy of Manipulation.

The following extracts from a paper by W. Hall Simmons, D.D.S., in *Items of Interest*, are well worthy of the attention of practitioners in this country.

"'Delicacy of manipulation.' What is it? How acquired and how lost are among the points we shall consider. A delicate touch is a touch soft and easy, yet firm and steady. It is an intelligent touch which speaks louder than words, and says to the patient in the chair, 'these hands understand their work.' It says to the frightened, nervous woman, 'you have no reason to fear.' It dries the tears of the nervous child; brings relief to old and young, and gives joy both to the sufferer and to the possessor.

"We hardly touch a patient when at once he forms some opinion of our skill as an operator. Those are mistaken who think that nimble fingers with loose joints are the ones most apt to produce this delicate touch. The fingers should not fly like so many sticks hung on hinges, but should have a rapid, easy and graceful action. This valuable motion and touch can only be acquired by working with the head as well as with the hands. The operator who thinks of a dozen things aside from his operation will never acquire the skill he ought to have. The whole mind must be concentrated upon the operation and should work more actively than the fingers, planning ahead what the fingers shall do.

"Again, the delicate, careful operator must put himself in the place of the patient; he must feel a sympathy for him—a true sympathy which comes from the heart. That operator who can, without a feeling of sympathy, cause the perspiration and tears to course down a patient's face, will never acquire a delicate touch. I believe it is safe to say that he who handles his patient with the most ability is a man with a big heart."

Editorials.

Our New Series.

WE trust our readers will be agreeably surprised with our New Year's appearance. It will gratify all our members to realise that after twenty years of existence the growth of the Association has rendered an expansion of the Journal an absolute necessity. Our endeavour to improve the appearance of the cover while increasing the size of the book will, we trust, also be appreciated. The extra expenditure involved in postage, printing, &c., must be faced, and need not cause any serious anxiety. The energy of our publishers, Messrs. Baillière, Tindall and Cox, has already raised the Journal from being an expense to being a source of income, and while we are in such capable hands we have little cause to anticipate an unsatisfactory balance-sheet ; but even should the first year of the new *régime* show a slight deficit, the money will be well spent in providing ampler accommodation for our proceedings, and an outward appearance more worthy of the dignity of the Association which the Journal represents.

What Association Means.

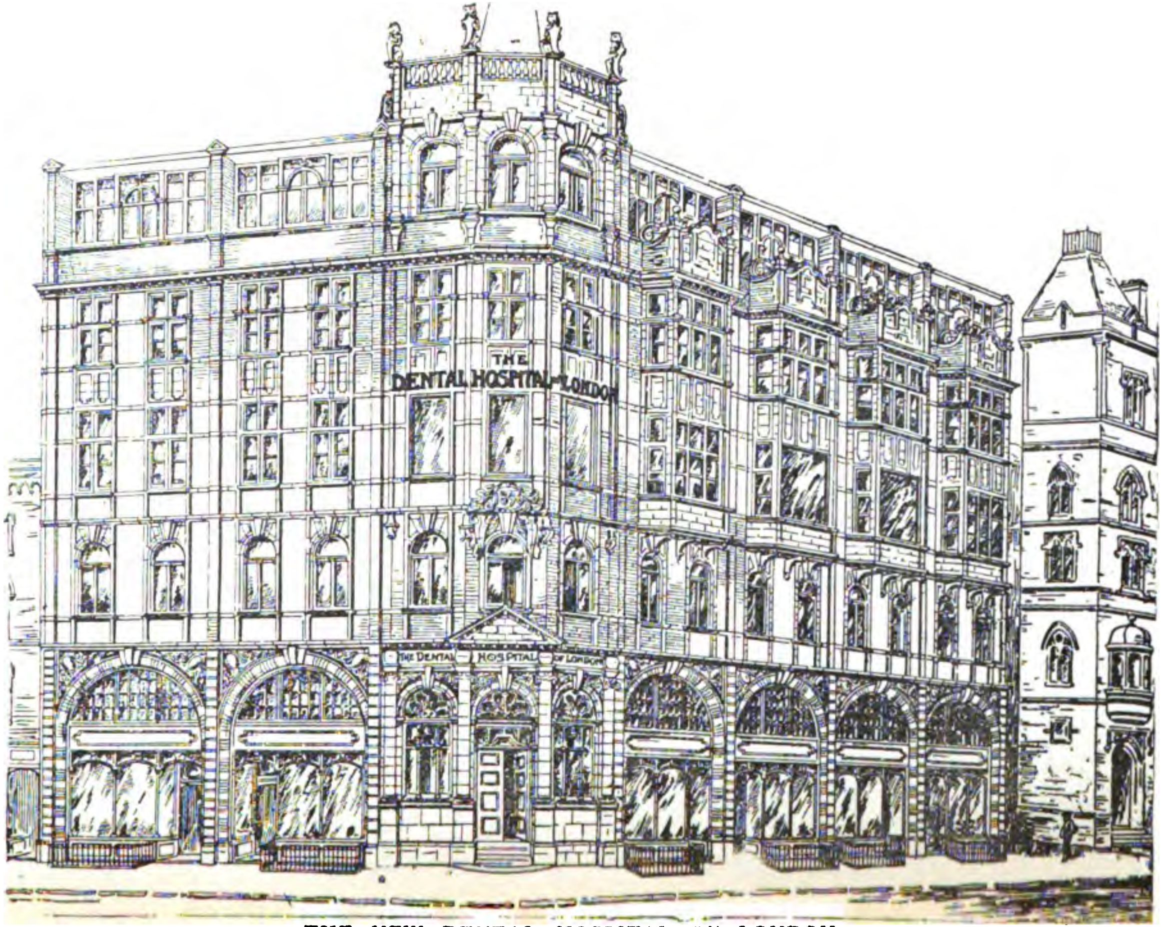
SURELY the meaning of the word, our title, our watchword, is a matter about which there is no room for doubt, no need for editorial explanations. If suddenly asked, each member would, no doubt, instantly reply that he knew perfectly well what the word meant, and then he would think again and find that it was not such a simple matter after all. To pay a guinea, to receive a Journal, to sit through some dinners and listen to some papers, to meet some friends and perhaps serve on some committees—all these things belong to the idea, but they do not quite define it. What, then, is the real essence of the thing ? In what respect is an association of dental surgeons better than a number of independent dental individuals ? It really lies in this, that we share our joys and our troubles. We share our youth and our age, our unwisdom and our wisdom. A man grows old, his eyesight perhaps begins to fail, his hand, maybe, is not so steady as once it was, patients who once would tolerate no touch but his find out some younger prophet, expenses increase, economies peep out and frighten the few faithful adherents. It must be remembered that a practice is personal, and when the practitioner loses his finer touch his patients leave him, and the story ends so sadly that nothing but its grim reality could excuse the pen that writes it. But an Association does not grow old, and the youth, the prosperity, the ability that is continually pouring into it, can, and should, take upon itself the troubles of those whose misfortune it has been to have been unable to provide for the evening of life. Our readers may say this is all very common-place stuff, and that they cannot see why it should ever have been written. Our comment would be in such a case that out of our roll of members *not nearly half* are annual subscribers to our Benevolent Fund! One of the first objects of our Association—a scheme projected even before the Association itself—has been from the first supported mainly by the few who support every movement for the good of dentists and dentistry, and neglected by the many who, perhaps, never think of the fund till they have to cower under its shelter from the east wind of poverty and old age. Just now, when after a great year of national prosperity, those of us who have a little surplus are, perhaps, wondering what is the best claim against our charitable pocket, let us think of the helpless of our own calling, and let every member become at least an annual subscriber. We should like to be able to publish in our next issue the announcement that this subscription list—shall we call it our New Year's honours list—has been doubled, so let each member who does not subscribe consider this as one of the pleasant amenities of entering a new year. He may rest assured that in subscribing to the fund he will never have cause to regret his action.

The New Dental Hospital.

ALL who are interested in the progress of education must look upon the erection of a new building for the purposes of professional instruction as a step in the right direction, and it is a gratifying sight to those who have waited so long, and hoped so eagerly, and subscribed so generously, to see the new Dental Hospital actually in the course of construction.

By the munificence of a single individual, the National Dental Hospital was a few years ago enabled to blossom forth in the glory of a new building, and now, after years of asking, the fund for the new Dental Hospital of London has at last reached sufficiently large proportions to enable the work to be begun. It should be remembered that the hospital is for the benefit of the poor of London, and it is to the London public that we should look for the necessary funds; but it is to the members of the dental profession themselves, rather than to the general public, that gratitude is due, and but for their generosity the activity which is now apparent on the south side of Leicester Square could not have sprung into existence for many years to come. Now, however, the foundations at least are a *fait accompli*, and the time is not far distant when the energies of those who have worked so hard to maintain the standard of the profession, as well as to relieve the sufferings of the necessitous, will be rewarded by a building complete in every detail and thoroughly up-to-date. The Dental Hospital of London should be one of of the best that can be produced, and when we think of the splendid work that has been done in the present building, with all its disadvantages, we feel it is not too much to say that the new hospital will undoubtedly be one of the finest and the foremost.

A large number of members of the British Dental Association and old students several years since subscribed very liberally to the fund for erecting a new Dental Hospital in Leicester Square. They, together with the members of the profession generally, will be glad to see the accompanying picture of the elevation, and to know that the builders (Messrs. Trollope & Son) have promised that the building will be complete in two years.



THE NEW DENTAL HOSPITAL OF LONDON.

The internal fittings have been supervised by the Medical Committee, and will, we understand, be quite "up-to-date."

We venture to congratulate the executive who have persevered through good report and evil report, and have surmounted obstacles that only those can understand who have attempted similar work in London. We look forward with great interest to the laying of the foundation stone, which we trust will shortly take place, and it is hoped that some of the original promoters of the Hospital who are still spared to us may be able to favour us with their presence.

A pamphlet is issued by the Treasurer entitled, "The Dental Hospital: Its Wants and Its Work," which will be gladly sent to any member of the Association who may be anxious for the welfare of the institution. The pamphlet contains a coloured elevation and plans of each floor, and gives a very good idea of the future building that is to be.

The Annual General Meeting.

THE Annual General Meeting of the Association will be held in the Town Hall of Ipswich, on Saturday, May 20, Whit-Monday, May 22, and Tuesday, 23rd, next.

Members willing to read papers or give demonstrations at the meeting are requested to kindly send their names to W. B. Paterson, Hon. Secretary, 40, Leicester Square, W.C.

IT has been thought advisable by the executive to issue Mr. Smith Turner's paper, "On Matters connected with the British Dental Association" (which appeared in the September number of the Journal), in pamphlet form, and as no one is better able to explain the *raison d'être* of the Association than Mr. Turner, the paper will be of valuable assistance to officers of the Society in enabling them to bring before the notice of those who are not already members the urgent reasons why every dental surgeon should enrol himself as soon as he is qualified and registered. Secretaries of branches and other persons with special opportunities of distribution in the right quarters will receive copies of the pamphlet with this issue of the Journal.

Correspondence.

We do not hold ourselves responsible for the views expressed by our correspondents.

The Card Advertisement.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION.'

SIR,—Will you allow me to suggest that the discussion on this question should be restricted as far as possible to the question raised, viz., the desirability of the repeal of the bye-law of the Association which permits its members to issue the card advertisement.

The reform of the whole profession, to say the least, is "another story," and may be raised after our own house has been set in order; or, to borrow another metaphor, after the beam has been removed from our own eye.

Your obedient servant,

Dental Hospital, London. THE DEAN.

Association Intelligence.

The Honorary Secretary of the Association desires to emphasise the statement he has on several occasions previously made, viz., that anonymous communications relating to cases of irregular practices, or alleged infringements of the Dentists Act, cannot receive from him that attention he would wish to bestow upon them, or they may deserve.

Irish Branch.

A GENERAL meeting was held in Belfast on Dec. 9th and 10th in the rooms of the Students' Union, kindly lent for the occasion by the President of Queen's College. Members present:—Messrs. J. J. Andrew, President (in the chair); W. McStay, W. H. Elwood, G. P. Moore, G. W. Yeates, A. W. W. Baker, G. J. Goldie, W. J. Bowden, H. Williams, G. M. P. Murray, K. E. O'Duffy, C. M. Cunningham, and W. G. Story. Visitors:—Dr. R. Purdon and Dr. J. Tennant. Apologies for non-attendance were received from Messrs. C. Rogers and J. McStay.

At the first meeting, which was held on Friday at 8 p.m., the proceedings commenced with the relation of incidents of practice by Mr. H. WILLIAMS, who furnished some interesting information regarding the taking of Röntgen photographs of the mouth. In the discussion which followed, much stress was laid on the necessity of having the rays, when the photograph was being taken, perpendicular to the film rather than to the teeth.

Mr. Williams also brought forward models of cases in which symmetrical extraction of the six-year molars had been done, and spoke of the desirability of postponing their extraction until after the eruption of the twelve-year molars.

The PRESIDENT showed some models of fractured incisors, and described how he had rebuilt them. He then showed a case in which a misplaced lateral had been crowned for a young lady, who wished her teeth made straight in two days, preparatory to marriage. The President also described some of his experiences in the bleaching of teeth.

Röntgen ray slides were shown by Mr. Goldie, and models of a very unsymmetrical maxilla by Mr. Elwood.

Mr. MURRAY then read a paper on "An Odontome," and showed lantern slides and models of the specimen.

Mr. CUNNINGHAN read a paper on "Some Practical Points in Bridge Work," and the meeting then adjourned to 23, University Square, where the members were entertained at supper by Mr. Andrew, the out-going President.

On Saturday the Association again met to transact the yearly business. The report of the Hon. Treasurer, showing a balance to credit, and that of the Hon. Secretary, showing an increased membership of fifty-two, were adopted. The following officers and council were elected for 1899:—President, D. Corbett, jun., F.R.C.S.I.; Vice-President, G. M. P. Murray, F.R.C.S.I.; member of Representative Board, A. W. W. Baker, F.R.C.S.I.; Hon. Treasurer, J. S. Thomson; Hon. Secretary, W G. Story. Council:—J. J. Andrew, A. W. W. Baker, W. J. Bowden, D. Corbett, C. M. Cunningham, W. H. Elwood, J. McStay, R. H. Moore, K. E. O'Duffy, P. O'Meehan, J. S. Thomson, H. Williams, and G. W. Yeates.

Votes of thanks to the outgoing President, Mr. Andrew, and to the President of Queen's College and the Hon. Secretaries of the Students' Union having been passed, the meeting adjourned.

Western Counties Branch.

A SPECIAL Meeting of the Council, to be followed by an informal meeting of members, will be held at the College Green Hotel, Bristol, on Saturday, January 21, 1899, at 3 p.m. The purpose of the meeting is "to consider the desirability of holding an additional meeting of the Council during the winter months, and to resolve thereon."

T. ARTHUR GOARD, *Hon. Sec.*

Southern Counties Branch.

THE next meeting will be held at Hastings on Saturday, January 28.

Demonstrations: Mr. Beadnell Gill, "Porcelain Inlays;" Mr. Vernon Knowles, "The Advantages of a Composition Swaging Flask;" Mr. A. E. Anderson, "The Working of Cast-Metal (Watts);" Mr. T. A. Tait, "Swaging a Plate with Ash's Swaging Press," and "A Simple Method of Making Celluloid Nerve Caps."

FRANK V. RICHARDSON, *Hon. Sec.*

Metropolitan Branch.

THE Annual General Meeting will be held at 40, Leicester Square, on Tuesday, January 31, at 8 p.m.

AGENDA.

The Minutes of the previous Meeting.
The Election of Auditors.
The Treasurer's Report.

The Election of President-elect, 4 Councillors, and Secretary.

The Appointment of Scrutineers.

The Council propose that Bye-law 5 shall be altered to read "The Officers of the Branch shall consist of a President, *Two Vice-presidents*, President-elect," &c., &c.

Also that Bye-law 15 shall read "One-third of the Council shall retire annually *in rotation, and shall not be eligible for re-election for the ensuing year.* The vacancies thus created shall be filled up by the members of the Branch at the Annual General Meeting."

CASUAL COMMUNICATIONS.

The Secretary will be glad to hear from those members who may be willing to present casual communications.

Mr. T. A. Coysh will resume the discussion on the Treatment of Pulps and Pulpless Teeth.

The President will deliver a Valedictory Address, and will introduce the incoming President.

Council Meeting at 7 p.m.

37, *Queen Anne Street, W.* W. H. DOLAMORE, *Hon. Sec.*

Midland Counties Branch.

A MEETING of the above Branch will be held at Blackpool on Saturday, February 25.

The Hon. Sec. will be glad to hear from members who wish to bring forward any business or subject of interest.

T. E. KING, *Hon. Sec.*

10, *Museum Street, York.*

Midland Counties Branch.

LEEDS AND DISTRICT SECTION.

THE Second General Meeting was held at the Leeds Medical School on December 20, 1898. The PRESIDENT (Mr. Gaddes) occupied the chair, and called upon the Secretary, who read a telegram from Mr. Thomas Headridge regretting that illness prevented him from attending the meeting. The President expressed his sympathy with Mr. Headridge, who he hoped would soon recover and be able to open the subject of "Vulcanite Work" at the next meeting.

The Casual Communications were then taken, and as there was no "paper" the meeting was much indebted to Mr. Brunton for the many interesting communications he brought forward without special preparation and on short notice. He first showed a skull of a Maori, probably that of a woman, with the first lower molar impacted on the right side; considerable speculation arose as to the conditions which had caused the impaction. The well formed teeth, the good arch and the freedom from caries were very noticeable.

The next case brought before the meeting was the result of injury, in which a man had the right upper canine driven up into the jaw. The treatment pursued by Mr. Brunton was to draw the tooth down into position with forceps and fasten with ligatures. Inflammation and suppuration followed ; antiseptic washes were freely used and great cleanliness enforced. The suppuration continued, and the sinus was kept open with a tent dressing of nitrate of silver. The result was a great improvement and a prospect of steady healing. The case was under treatment three months. Considerable interest was taken in the question of future discoloration of the tooth supervening.

The next case was one of serious antral trouble following the extraction of a first upper molar on the left side which had an abscess at the root ; no special treatment was tried. The patient wore a denture which had no tube but a hole drilled to allow free drainage. The cavity was regularly syringed, resulting in a speedy recovery. Mr. Brunton was uncertain whether to describe the case as empyæma of the antrum or a displacement of the lining membrane by an alveolar abscess. Several members referred to the trouble they had experienced in the treatment of chronic cases of antral disease, and the success attending the use of iodine solution in these cases.

Mr. Brunton mentioned a simple method for facilitating the passing of a polishing strip between the teeth by drawing the blank side across a piece of soap stone, and next showed a Gartrell's swager using antimony shot instead of ordinary shot, which became flattened under the pressure. A gold denture was passed round which showed good adaptation to a fusible metal model; the plate in the first place was a long way off fitting the palate, but after being subjected to pressure in the swager fitted well, as already stated.

Through the kindness of the Dental Manufacturing Co., Mr. Brunton was able to exhibit samples of materials illustrating the manufacture of dental rubber as used for base plates. These included examples from the crude rubber to the finished article and the various colouring reagents employed. The communication was much appreciated by the members present.

The method of packing rubber directly on the model was described and found especially applicable to regulation cases. It was claimed that vulcanisation in this way gave better results as its specific gravity was higher.

Mr. Rippon showed models of a child aged 8 years—upper teeth normal, but in the lower were six teeth in the incisor region all having the appearance of normal incisors.

Each communication gave rise to a general discussion, and an interesting evening was spent.

The Society meets again on Tuesday, January 17.

We publish among the "Abstracts" an article from the *British Medical Journal* on "The Cause of so-called Phosphorous Necrosis of the Jaw in Match-workers." This is happily a rare condition nowadays, owing to improved sanitation and increased supervision of factory hands, but a case of necrosis of the jaw from whatever cause is always of interest to the dental surgeon.

Reports of Societies and other Meetings.

The Odontological Society of Great Britain.

THE ordinary monthly meeting was held on January 9, Mr. J. FAIRBANK, President, in the chair.

The minutes of the previous meeting were read and confirmed, and Mr. W. May signed the obligation book, and was admitted a member of the Society.

The following gentlemen were balloted for and elected :—Mr. Guy Chatterton, L.D.S.Eng. (South Africa) ; Mr. Henry Reginald Fryer Brooks, L.D.S.Ed. (Banbury) ; Mr. Albert de Mierre, L.D.S.Eng. (Eastbourne) : all non-resident members.

The following propositions for membership were read :—Mr. Robert H. Manning, L.D.S.Eng. (Wimpole Street) ; T. Harris, L.D.S.Eng., M.R.C.S. ; Mr. Walter Floyd, L.D.S.Eng., for resident membership ; Mr. John Harper, L.D.S.Eng., L.R.C.P. (Cape Town) ; and Mr. A. L. Goadby, L.D.S.Eng. (Reading) : both for non-resident membership.

The TREASURER presented the balance sheet for the year ending October 31, 1898, which showed a balance of over £70 in favour of the Society.

The LIBRARIAN reported the receipt, amongst other works, of a photograph of Guy's Hospital for Incurables presented by the Hospital authorities.

The CURATOR (Mr. Storer Bennett) exhibited specimens presented to the Museum by Mr. Morton Smale. The first was a specimen of a small monkey's skull, showing the transitional dentine from the temporary to the permanent. It was interesting as showing an alveolar abscess in connection with the left lower canine. The second specimen was also a monkey's skull showing the transition from the temporary to the permanent. The third was the skull of a kangaroo in which there was a very considerable periostitis in connection with the right half of the mandible, but apparently quite unconnected with the teeth. Another specimen was that of an agouti, showing the loss of several of the upper premolars and two of the lower molars from absorption of the alveolus. There was also a specimen of a howler, one of the monkeys of the New World, which showed considerable damage. All the upper incisors had been lost and the middle line had been deflected over towards the left side. The result was that the upper and lower canines had not worn each other, and the right upper canine was separated a good distance from the left one. It was an interesting specimen also as showing a small alveolar abscess on the right side. The last specimen was that of a young lion showing a considerable amount of thickening of the bone as the result of rickets.

Mr. BADCOCK mentioned the case of a wisdom tooth communicating with the antrum. In September last a gentleman came to him complaining of dull undefined pain in the right upper jaw. On examining the mouth he found a cavity existing on the mesial side of the third molar, a cavity above the cervical edge of an old filling, which extended to the pulp cavity, which was septic and contained the remains of a dead pulp. As the wisdom tooth was quite useless he extracted it, and after extraction was surprised to find that water passed out through the patient's nose. As it was the first case he had ever had of a wisdom tooth communicating with the antrum he looked the matter up, and so far he had not been able to find any other case specifically recorded. Mr. Storer Bennett had kindly put on the table a collection of antra, and it could be seen that generally the antrum extended well back beyond the root of the third molar, and generally over the tuberosity, and in those cases where specimens had been presented of broken tuberosities, in every case it would be found that a part of the floor of the antrum was upon the tuberosity.

Mr. REDMOND, in connection with Mr. Badcock's communication, presented to the museum a specimen of an unerupted wisdom tooth which lay horizontally in the floor of the mouth, and had penetrated the antrum.

Mr. F. J. BENNETT asked whether there was any real evidence that the root did go into the antrum. There was a communication with the antrum, but considering that the periosteum was much thickened, it was quite possible it had eaten away into the floor of the antrum. When the tooth was extracted there would be a communication in that way. It was not that the root originally passed into the antrum, but rather that the thickened periosteum had eaten into the antrum.

Mr. BADCOCK thought Mr. F. J. Bennett's explanation was probably the right one.

Mr. BALDWIN said that some time ago Mr. Robbins presented to the Society a specimen of tuberosity, which had come away in an attempt to extract a wisdom tooth. At that time Mr. Baldwin pointed out to the Society that between the roots of the wisdom tooth there was distinctly a very deep hollow, which had formed part of the floor of the antrum. In the discussion at the time he mentioned that the bone was so extremely thin over the roots that it seemed to be impossible to extract the root without bringing away the tuberosity. On looking at several other cases of tuberosity which had been extracted along with wisdom teeth, he found exactly the same condition existing ; there was a smooth rounded depression coming into extremely close relation with the tooth, which was evidently the floor of the antrum.

Mr. TOMES said that, as everybody knew, the antrum was an excavated cavity which at first did not exist, and afterwards was hollowed out. The fact that the antrum extended right back and over the roots of the first molar showed that it must go on being excavated, that the antrum was enlarging up to a later period than one was in the habit of imagining.

Mr. BALDWIN exhibited a set of four small knives for use as filling trimmers, and a new kind of excavator.

Mr. H. LLOYD WILLIAMS exhibited a small modification of Hammond's splint, which he had used for some years for the treatment of fractures of the mandible far back where only one tooth, usually the third molar, remained in the smaller fragment. When the model had been divided at the seat of fracture, and put together according to the normal occlusion, a Hammond splint was made in the ordinary way, except that it was made to fit loosely round the tooth in a small fragment. The splint was tinned, the single tooth well greased, and the splint adjusted on the model. Wax was then melted on the splint and tooth in sufficient quantity, and the whole was removed, flasked, and vulcanised. Thus a vulcanite cap was obtained which fitted the tooth exactly. The top cap was filed off so that the cusp could articulate correctly with the opposing tooth. Adjusting it in the mouth, the splint was wired in the ordinary way to the large fragment, whose weight would draw down the smaller fragment, and always keep it in apposition. He had treated seven cases in that manner, six successfully. He briefly referred to the failure, and to the second case, which was his first success, the others presenting nothing of special interest. In his second case, that of a married woman five months pregnant, the fracture was on the left side in front of the third molar. The second molar roots were removed under an anæsthetic, and a splint such as he had described was adjusted. There was perfect union in five weeks. The feature common to every case that had come under his notice deserved to be specially mentioned, as the success of the treatment depended upon its recognition. In every case the second molar was very badly decayed, or was only represented by roots. As it was so extremely difficult in such cases to discover even a large distal cavity in the second molar before the splint was adjusted, and as in all his cases the second molar had had some serious lesion, he should always extract the second molar as soon as the model had been taken.

The paper of the evening was by Mr. J. HOWARD MUMMERY, on "The Teeth of the Echeneis," or sucking fish. He said the curious sucking disc which gave the popular name to the fish was a modification of the dorsal fin, and he produced a specimen in spirit of the fish. The lower jaw projected far beyond the upper, so that on closure of the mouth the anterior upper row of teeth shut almost entirely behind the whole of the teeth on the dentary bone in the lower jaw. The upper row of teeth occupied the anterior border of the inter-maxillary bones, projecting almost horizontally forward. The teeth were also much longer than elsewhere in the mouth, and of a very different shape. They were flattened antero-posteriorly, slightly expanded at the base, narrowing upwards and expanding again into a curious spatula- or hoe-shaped crown, strongly re-curved and prolonged on the mesial side into a point. The crowns were in close contact with one another at their edges, slightly overlapping, and forming a semi-circular line from the angle of the mouth on the one side to that on the other. Behind the angle of the mouth there was a broken line of seven or eight teeth of a quite distinct shape. Their shape was conical, and they were very sharply recurved, with sharp pointed enamelled tips. The teeth of the lower jaw occupied the dentary bone and the lingual bone, teeth being also present upon the inferior pharyngeal bones, the branchial arches, and the superior pharyngeals. The lower teeth were arranged in four or five distinct rows, the larger teeth occupying the front row and the smaller the inner row. Histologically the teeth of the Echeneis consisted of vaso-dentine of an imperfect character containing very few vessels, exhibiting laminations parallel with the long axis of the teeth, and armed with a very sharp point of clear, apparently structureless, enamel. The mode of attachment was quite distinct from that described in any other fish of the family. Each tooth was attached to the summit of a special bone of attachment, but was not ankylosed to it. It slid freely upon the bone and exhibited a modified form of hinge. The summit of the process of bone was in the form of a convex ring slightly raised on one side, resembling the ball of a ball-and-socket joint, with the centre cut out, leaving an elevated ring of bone. The base of the tooth was admirably adapted to the surface and slid easily upon it, forming the concave surface of the joint. The opening for the passage of the tissues of the pulp was large, to allow of the movements of the teeth taking place without injury to the nerves and vessels. A capsular ligament surrounded the whole, giving a still greater likeness to a ball-and-socket joint. The capsule was strengthened anteriorly and posteriorly by a fibrous band, there being a distinct impression upon the bone, and also on the

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tooth for the attachment of the fibres. The arrangement allowed a sliding movement of the tooth on the bone of attachment in every direction, but the ring of bone being slightly more elevated on the anterior aspect, the motion was limited in that direction more than in the opposite. Mr. Mummery thought that the Echeneis showed another stage in the transition from ankylosed to hinged teeth.

A short discussion followed, and at its conclusion the meeting adjourned until February 6.

Society of Anæsthetists.

A MEETING of this Society was held at 20, Hanover Square, on November 17 (the President), Dr. DUDLEY BUXTON taking the chair.

The PRESIDENT said that it was his pleasant duty to welcome the members of the Society at this, the first business meeting of the present Session, and to hope that the meetings in the present year would be as successful and instructive as those which had occurred in the past. Though the Society was a young one, he hoped that its work had been such as to show that its meetings were in themselves valuable and of distinct benefit to each and all of its members.

If the members were willing to work with the same zeal and energy that they had shown in the past, they would realise what they hoped for, a continual period of utility and prosperity, and upon the members themselves depended the future success of the Society.

He hoped and had no doubt that they had before them a most interesting evening, and therefore he would not waste time by adding anything further, except to say that the pleasure and success of their meetings must depend very largely upon themselves. They could not always expect to have help from those who were good enough to come from outside. They must have papers or discussions, and especially cases of difficulty and danger brought before them. No case of difficulty was too trivial to be of value, and those who were busy with practice all the week knew how constantly such cases cropped up. Moreover, the opportunity of knowing the opinions of others was to be found in discussing cases of difficulty openly before their fellow-workers, when perhaps they might sometimes learn that the methods which they had thought to be best were not considered by others to be quite immaculate. The Secretaries were always ready to receive papers and to seize at the opportunity of any new matter being brought forward.

Professor WILLIAM RAMSAY, F.R.S., then read a paper on "Pure Anæsthetics," in which he dwelt especially on the chemistry of chloroform.[1] An interesting discussion followed, in which the following gentlemen took part—Mr. Willett, Dr. Silk, Dr. Augustus Cook, Mr. McCardie, Mr. Carter Braine, Dr. Probyn Williams, Mr. E. F. White, Mr. E. A. Starling, and Dr. Dudley Buxton.

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[1] Professor Ramsay's paper appears in the *Clinical Journal* of December 7, 1898.

Reviews and Notices of Books.

Eason & Son's "Every Hour" Diary.

We have received from Messrs. Eason & Son, of 80, Middle Abbey Street, Dublin, a copy of their "Every Hour" Diary for 1899. This is a most useful appointment book, with the days and hours printed in good bold type, and so arranged that the practitioner may, on referring to the indexed margin, open his book and survey the week's work with facility. The book is contained in a detachable cover, with blotting-pad and letter-pocket, thus combining economy with convenience. The margin is indexed to every month, and the hours for appointments range from 9 to 6, with extra spaces for "morning engagements" and "evening engagements." It is altogether a very neat and convenient diary.

Obituary.

Charles John Hare, M.D.Cantab., F.R.C.P.Lond.

It is with deep regret that we have to record the death of Dr. Charles J. Hare, the well-known physician, who took a warm interest in all matters relating to the advancement of dental surgery, and who for a considerable period occupied the chair of the Committee of Management of the Dental Hospital of London. Lengthy accounts of Dr. Hare's brilliant and useful career have appeared both in the public and medical papers, so that it is needless here to dwell upon the many offices held by him during his long life. We can only briefly refer to some of them. In 1850, with his life-long friend, Sir William Jenner, he was appointed assistant physician to University College Hospital, and in 1858 he became full physician. In 1863 he was elected to the Professorship of Clinical Medicine to the same hospital, and when in due course his official connection with this hospital ceased, he took an active part in many of its committees, and lived to become the Senior Member of its Council. His work in such matters was ceaseless, and for many years he held the office of hon. treasurer to the Royal Medical and Chirurgical Society, and at the important period when the Society transferred its home from Berners Street to the present house in Hanover Square. Dr. Hare was possessed of great business capacity, and when in December, 1891, he accepted the invitation of the members of the Committee of Management of the Dental Hospital of London to become their chairman, it was a source of gratification to all connected with the institution.

It was at that time that the absolute necessity for increased accommodation had forced itself upon those who bore the brunt of the practical working of the hospital, and in the early difficulties of commencing the acquirement of a new site, Dr. Hare's wise, prudent and experienced counsels were of the greatest service.

On retiring from the chairmanship of the Committee, Dr. Hare was elected a vice-president of the hospital, and during recent years his well-known face was frequently to be seen at many of our dental reunions, when no one could fail to note with admiration his kindly smile, refined features, and courtly bearing.

In his 81st year he passed away, a few days after his friend, Sir William Jenner, and was buried on December 20 in Highgate Cemetery. On one of the many wreaths which lay upon his coffin were the truly appropriate lines:—

"A life well lived,
A race well run,
A rest well earned,
A crown well won.'

Miscellanea.

We have received the following letter from the Secretary of the Benevolent Fund:—

"To the Editor, 'Journal of the British Dental Association.'

"11, Queen Anne Street, Cavendish Square,
"*January* 4, 1899.

"Sir,—At the annual meeting held in Bath, two or three members of the Association, being subscribers to the Fund, expressed the opinion that the work done by the Fund might with advantage receive more frequent notice in the Journal. My Committee, therefore, decided, with the concurrence of the Publishing Committee, to issue monthly a list of new subscriptions, and further, to give interim reports of the work being done. I would take this opportunity, on behalf of my Committee, to thank you and the Publishing Committee for the ready assent that you gave to this proposal, and further, to thank you for the offer of a leader to appear in this month's issue. I now send a short account of the work done since the annual report, which I would ask you to publish.

"Yours truly,
"John Ackery (*Hon. Sec.*)."

Interim Report.

The cases mentioned in May last as *old cases*, are, with three exceptions, being helped as before. One, a widow, having married again, no longer receives help. In two cases it has been found necessary to increase the grants which had been made.

Three of the eight new cases mentioned in last Report have ceased to require aid.

Since last Report a boy aged 9 has been elected to Wolverhampton Orphanage (thanks to the help of several members of the Association), and another boy, aged 8, has been sent to an Orphan Home where, at a cost to the Fund of £10 per annum, he will be maintained and educated.

Another lad has been removed from an orphanage, and is now learning mechanical dentistry (without premium) under the care of a subscriber to the Fund. His maintenance is in part defrayed by the Fund.

A lad has (by the influence of the executive) been placed in a business house where he should do well.

A widow who for some years has maintained herself without our aid, has, through illness, been compelled to re-apply, and has been granted a small weekly allowance for a time.

The following are *new cases* since March.

A dentist who, through illness, has been in straitened circumstances, has received a small grant, and is now doing without our aid.

Two aged dentists who, through ill-health and misfortune, have been obliged to give up work, receive each a weekly grant, and to one of them £10 was voted towards arrears of rent.

The Fund has also contributed £10 10s. towards a local effort being made on behalf of the widow of a late dentist, much respected amongst his colleagues, and it is reasonably hoped that this step may result in permanent benefit, and obviate the necessity for a direct appeal to the Fund.

Besides a few new subscriptions and Branch collections (already published in the Journal) the Committee would gratefully acknowledge the receipt of £10 10s., presented by the President of the Association at the last annual meeting. Also a handsome donation from the Western Counties Branch of £15, being part of the surplus of the Entertainment Fund at Bath, and a special donation of £10 voted by the Irish Branch.

A few more Local Representatives have been appointed, and it is hoped that the year 1899 may be one of increased prosperity and usefulness.

JOHN ACKERY (*Hon. Sec.*).

New subscriptions received during Nov. and Dec., 1898:—

Geo. E. Macdonald, 14, The Circus, Bath	£0	10	6
Peter E. Fox, 20, Northend Square, North Shields (per J. W. Dent, Local Representative)	0	10	6

T. Taylor Genge, Atherstone House, Whiteladies Road, Clifton, Bristol	£1	1	0
W. G. Routledge, 5, Belgrave Parade, Westmoreland Road, Newcastle-on-Tyne (renewed subscription)	1	1	0

Donations.

John J. Andrew, 23, University Square, Belfast	1	1	0
Charles Stokes, Cecil House, Highfields, Sheffield	1	1	0
Irish Branch of the B.D.A.	10	0	0
Southern Counties Branch of B.D.A., Collection, October 29, 1898 (per F. V. Richardson)	1	18	0

Dental Hospital of London.

The following contributions of £5 and upwards have been recently received towards the new Building Fund:—

The Worshipful Company of Grocers	£100	0	0
The Worshipful Company of Goldsmiths	100	0	0
The Worshipful Company of Merchant Tailors	31	10	0
The Worshipful Company of Mercers	21	0	0
The Worshipful Company of Cordwainers	21	0	0
The Worshipful Company of Joiners	5	5	0
John Fairbank, Esq. ...	100	0	0
Messrs. Rothschild	52	10	0
Mrs. F. G. Smart	25	0	0
Duke of Norfolk	20	0	0
Ashley Densham, Esq. (to complete £50)	25	0	0
Miss Burmester	20	0	0
Lt.-Col. Windsor-Clive ...	10	10	0
Henry Rogers, Esq.	10	10	0
F. D. Mocatta, Esq.... ...	10	10	0
Alan L. Pink	10	10	0
J. Humphreys, Esq.... ...	10	10	0
Miss M. N. Baring	10	10	0
R. Oxenham, Esq.	£10	10	0
A. R. Steele, Esq.	10	10	0
Rev. J. Tillard	10	10	0
Colonel Broadwood	10	10	0
Miss Walters	10	0	0
W. S. Dent, Esq.	10	0	0
Louisa, Lady Goldsmid ...	5	5	0
W. de C. Prideaux, Esq. (1st of £10 10s.)	5	5	0
J. W. Browne, Esq.	5	5	0
Miss Young (to complete £10 10s.)	5	10	0
R. F. H. King, Esq. (1st of £10 10s.)	5	5	0
Eustace Eskell, Esq. (to complete £10 10s.)	5	5	0
Douglas Gabell, Esq. (to complete £10 10s.)	5	5	0
G. Dalton, Esq.	5	5	0
L. de Rothschild, Esq. ...	5	5	0
Stuart Margetson, Esq. ...	5	5	0
Hon. W. F. D. Smith, M.P.	5	0	0
Mrs. H. Whiting	5	0	0
Mrs. Edwards	5	0	0
J. Murray Wilson, Esq. ...	5	0	0

A Vegetarian's Dream.

In the *New Century Review* in the course of an article on the Dietary on the Twentieth Century, Dr. J. Oldfield maintained that either the primitive savage was right in his practices or the modern scientist is wrong in his theories. The dietary of the twentieth century will be the result of a combination of experience, science, instinct and ethics. Experience proves that the best physique is obtained, and the best and most sustained work is done, by that part of the human race which subsists upon fruits, grains, nuts, pulses, vegetables and animal products. It proves that, for spasmodic efforts of leonine strength, a flesh dietary is best fitted, but for untiring, patient energy and real, sustained stamina, the vegetarian animal carries away the palm. The hard work of the world is done by horses, oxen, asses, camels, elephants, reindeer, and not by lions, tigers, cats or dogs. The German long-distance walking matches have proved the superior stay and stamina of vegetarians. The Scottish peasantry have been for centuries practically vegetarians, and now their national constitution is so developed that Scotchmen are found at the top all the world over. Science proves that man, by his anatomy, should be classed at the head of the anthropoid apes among the frugivores, and not with the carnivorous tiger or the omnivorous hog! The type remains permanent, even after centuries of experimenting with flesh foods. If these foods had been for the good of the human race, we should have expected to have found a gradual adaptation towards the carnivorous type. Instinct remains as the guide of every child that is born. Instinct bids the kitten to eat flesh, the lamb to eat grass, and the child to eat fruits! Finally, ethics are pleading with a voice growing daily in force as in sweetness, for a realisation of the dreams of prophet, poet, and painter alike—pleading for the incoming of the Golden Age of Humanity, when the lion, in man, shall lie down beside the lamb, and no longer thirst for its flesh and its blood—when affection shall take beneath the human ægis all that can suffer and feel pain, and when the kinship of all beautiful lives shall be recognised and reverenced. The dietary of the coming century shall be in harmony with its aspirations and the human race will vegetate.—*Invention.*

Letters received from:

E. M. Tod; F. V. Richardson; W. H. Dolamore; Shipley Slipper; W. J. Story.

Appointment.

Peyton Levason, L.D.S.Eng., to be Hon. Dental Surgeon to the Hereford General Infirmary.

Note.—ANONYMOUS Letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 26, Wimpole Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

Subscriptions to the Benevolent Fund to the Treasurer, A. J. Woodhouse, Esq., 1, Hanover Square, W.

All contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 26, Wimpole Street, W.

Journal of the British Dental Association

No. 2. FEBRUARY 15, 1899. Vol. XX.

Original Communications.

Selection and Mounting of Porcelain Teeth.[1]

By E. J. LADMORE, L.D.S.

In the selection of porcelain teeth we must be guided for size, type, and colour by the remaining natural ones; but in edentulous cases, to which I will mostly confine my remarks, the operator must exercise his own judgment, and will be guided by age and physical characteristics, sex not being an important factor. It may be inferred from this that those selected for elderly people should be dark in colour, but this does not always hold good. I remember a case in point when I was making a complete denture for an old gentleman, over 80 years of age, and I decided to use dark teeth—in fact they were mounted on wax and tried in. On seeing them the patient said, "These teeth look very dirty," and when I explained why they were so selected, he said, "That's all nonsense, because at my age every one knows they must be artificial, therefore I prefer to have nice, clean-looking teeth." There was so much force in his argument that lighter ones were substituted, and I must admit that they looked very well indeed when finished.

The shrinkage of the outer alveolar wall, consequent upon the loss of the natural teeth, renders it advisable that artificial substitutes should, in most cases, be somewhat smaller—I mean narrower—than the original ones, but our patients often demand pretty, small, very white, and very regular teeth, without the least idea as to their suitability for the individual case, and where these instructions are carried out the result must be in most cases very disappointing.

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[1] Read at the first Meeting of Leeds and District Section of the Midland Counties Branch.

Granted that they should be smaller than the normal ones, we must also bear in mind that the front six in the upper, when mounted, must be so wide across the front that the canines are placed at the largest diameter of the front of the arch, as they determine the angles of the mouth, so that when the patient smiles he shows only six or eight teeth at a glance, but if the teeth are too narrow we get the bicuspids coming so far round the corner as to occupy the place of the canines, and the afore-mentioned smile will disclose ten or even twelve teeth—in fact, such a mouthful as shouts artificial in every line of it.

We are all sufficiently well acquainted with the various kinds of porcelain teeth, so that it is scarcely necessary for me to allude to them, but I will take this opportunity of saying that I have found so-called vulcanite teeth a complete failure when used for the upper fronts, as the inclined planes at the back cause them to be either fractured or forced out of the rubber in mastication; and this has occurred so frequently that I always use flat back teeth for the upper fronts. In the lower teeth vulcanites are best. In vulcanite we have an excellent material for replacing the gum tissue lost by absorption, but such an opaque substance cannot be made to resemble the natural gum in cases where the gums show very much, and it is in such cases as these that we shall find gum section teeth very useful, as they make beautiful work, but will often be found too severely regular to have a natural effect. Continuous gum work more nearly reaches the ideal of perfection, but that process does not seem yet sufficiently certain in its results for use in every-day practice. Most of us have used very long teeth to avoid this gum difficulty, but the result is disappointing, as they are apt to appear very tusky.

In cases where the remaining natural teeth are honeycombed, the artificial substitutes selected to replace the missing ones should have the same characteristic markings, so far as we are able; and I put it this way because malformations of this kind are very badly represented in our tooth cabinets; indeed, there is plenty of room for new and better forms of honey-combed teeth. This is a subject I have been hammering at the travellers for years, and if more would take the same line it is probable that the makers would be induced to supply what we want.

It is never necessary to use the set of six fronts just as we get them, and it will often be advantageous to change the centrals or laterals; especially in a very wide arch the substitution of broad laterals is to be recommended, and spaces may also be left between the teeth instead of using very broad and unsightly centrals.

Many of us will say that tube teeth have gone out, and that may be true so far as the front teeth are concerned, but for molars and bicuspids they are still very useful when front teeth are soldered to the plate, and this simplifies repairs and additions which become troublesome when the back teeth are put on with vulcanite.

I assume that the bite is already taken, as that is not a part of our subject; and in mounting the teeth in wax we will still confine ourselves to edentulous cases, or at least to cases where the natural teeth in the front of the mouth are absent, as the addition of porcelain teeth to fill up spaces between the natural ones is entirely ruled by the size, type, and colour of the latter and the amount of space at our disposal; and when this space is less than it should be it is better to leave out a tooth or two to avoid a crowded and unnatural effect, because we must, above all, study to give our work as natural an appearance as possible. I say as natural as possible because Nature arranges the teeth in such a variety of shapes that we can only feebly copy, and our best attempts at irregularity are very stiff in comparison, as we have always to provide for fastening the teeth by their pins, which makes them thicker at the back than the natural ones and limits the amount of rotation. In this respect the old tube fronts had a decided advantage.

In arranging the teeth on the model the centre must first be determined, and the median line of the lips should first be observed. But this is not all, because in nature we rarely see absolute regularity, and in studying faces we find that the nose is not always in the centre but often inclined to one side or the other. The eyes, again, are not always in the same horizontal line, and the mouth is not always straight across the face; so in determining the median line on which to pitch the central incisors, we must take an average centre of all the features concerned, and even in cases where the natural teeth in the lower are still retained, but out of centre, they should be regarded as only one of the features to be observed in determining the median line for the upper denture.

This done, the next point is the length of the teeth in the upper and lower, and this is purely a matter for the judgment of the operator, as I know of no rule for it. In my own practice I like to arrange them at first, so that they just show when the mouth is opened with the lips at rest, but there must be a little experimenting beyond this, and I take this opportunity of saying that the front teeth should always be arranged in the surgery by the operator while the patient is in the chair, because models and bite do not supply everything, and the face as a whole is necessary to insure a really artistic arrangement.

I have said that the mouth is not always straight across the face, and this peculiarity must be noted, because the teeth as a rule should be in the same horizontal line with the lips (assuming that the latter are not deformed congenitally or by accident), and the other features may in this instance be disregarded.

All these points duly noted, it only remains to mount the front six in the upper and lower roughly, try them in and note the appearance with the lips closed, to see if the lips are sufficiently prominent, or if the teeth require placing further back, and to make any alterations which may seem necessary, until we are satisfied with the arrangement; and at this point it is advisable to take the patient into our confidence by giving him a hand glass, as he will often see at a glance where improvement may be made, and I have frequently profited by suggestions in this way, as there is no doubt that patients generally know if the teeth so mounted will suit them.

It is now advisable to note if the bite is correct, and when the lips are closed we can see whether the artificial gum, if any, is sufficiently built up to take out the lines in the face due to absorption.

The mounting of molars and bicuspids can now be completed in the workroom, and they must be arranged on mechanical rather than natural lines. They should be placed as nearly as possible over the gum ridges, so that the finished denture may rest fairly steady during mastication, and if this precaution is disregarded in an attempt to make the arch as wide as the natural one was, the piece is likely to rock.

The arches of the upper and lower dentures are necessarily two distinct curves, and while the lower one is narrower in front, I prefer as a rule to make it wider than the upper denture at the heels, so that the second molars may be somewhat outside the corresponding teeth in the upper, and the two curves will cross at or about the first molars. This arrangement makes the upper steadier, gives more room for the tongue in the floor of the mouth, prevents the biting of the cheeks, and is, I think, an assistance in mastication.

In the bicuspid region, where there is a difficulty in getting the teeth to articulate properly, it is often a great assistance to leave out a bicuspid, often the first bicuspid in the upper, and this may leave a space, say, half a tooth in width, at the distal side of the canines, which looks very natural.

A New Post.

BY A. PEARSON WALLIS (DONCASTER).

IT is with considerable diffidence that I bring this paper on a new post before this Society. It may well be that the wider experience of many of its members demands nothing better than what they are in the habit of using. In spite, however, of such possibilities, I think the many methods in vogue for adapting tooth-crowns in porcelain prove both the importance and interest attaching to the subject, and that this will serve as sufficient excuse for my bringing the subject to your notice.

It is not necessary to go into the existing methods in detail, as all of you are no doubt familiar with each one; but I shall probably not be very far wrong in saying that all of us have adopted this or that method, starting with the full hope that at last the ideal thing has been reached, only, however, to find many difficulties and imperfections such as we had not anticipated, and to realise that the ideal had by no means been reached. Most of the difficulties that experience has taught us may be summarised as follows: want of resistance in the post at straining point; difficulty of getting the required position of the porcelain with a set back or set forward; trusting too much to the cement alone for fixity; infliction of pain in drilling, tapping, or shaping the root; inability to drill root to sufficient depth without perforating the wall or encroaching on the cementum; pain also in setting the crown, consequent on forcing cement to the apex; want of exact fit and relation between the post and the cavity to receive it; frequent impossibility of bending the post at such an angle that it admits of placing the porcelain tooth in position and at the same time getting the post to run continuously through the new porcelain body to be fused to it; lastly, difficulty to remove the post in case of the tooth cracking off.

I venture to think that all these difficulties, together with all other conceivable ones, are satisfactorily met with the new post which it is my pleasure to bring to your notice now.

The outfit is simplicity itself, and consists of a conical drill for straight and right-angled hand pieces; a solid platinum cone and a hollow platinum cone.

The method of procedure is equally simple.

Let us suppose a simple case, *e.g.*, mounting a pin tooth flushed at the back with gold or porcelain. The root is bored in a few seconds with the twist drill. Being conical, it travels rapidly, accurately and painlessly. Next a solid cone is selected and fitted to the requisite depth. When the proper depth is got, it is indicated

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[1] Read at the Midland Counties Branch Meeting held at Scarborough.

by scratching the post. It is then withdrawn and at this marked point filed back to a step. It will be found that the large circumference of metal gives ample scope for filing back sufficiently to arrange the desired position of the pin tooth. It also allows at the same time the getting of the proper angle of that part of the post to which the pins are to be soldered, and which must also pass through the porcelain which has to be fused at the back.

Having got the post properly filed back, the next thing is to make a hole in the thin piece of platinum which is to form the floor. This hole may be punched out with a rubber-dam punch and enlarged to rather less than the circumference of the post at its marked point. This must now have the cone forced through it into position. It will be found, if carefully done, that it will require no waxing to fix it—it will fix itself and can be withdrawn in position and soldered without investment in plaster. When soldered, it is again fitted to the mouth, model taken, and then finished off in the usual way, backing it up either with gold or porcelain. The fixing in the mouth requires a very small quantity of oxyphosphate smearing in the root and on the post. There is no need to roughen the post, as it will be quite firm without, and better left smooth because then it can be removed by force should the porcelain by any means crack off.

The hollow cone post is designed to meet the requirements of any case and to facilitate the use of any tooth in combination with it. Thus, any of the following may be used: a Logan, a Newland Pedley, an ordinary pin, or tube tooth. A strong pin can be soldered in the tube at any angle to suit the adapting of a Newland Pedley, a tube or pin tooth, or, if a Logan is chosen—which I prefer to all on account of its strength and perfect appearance—the pin of the Logan is bent to the proper angle, the hollow cone is filled with porcelain body, any parts are added which may be required, and it is then fused in the gas or electric furnace.

A crown finished in this way has all the advantages of a Logan with none of its defects. There is ample latitude in the post to get any required position. There is perfect adaptation of the post to the root, with a minimum of cement. There is natural and life-like appearance both back and front, and lastly, there is the satisfaction of being able to get the post out should fracture unfortunately occur.

A conical post has, to my mind, another and most important point in its favour, which is that the root is bored to receive it in exact relation to the shape of the root. Most is taken away where the thickness of the root is greatest, and least where it is smallest. This admits of drilling much deeper than is possible with a straight or parallel-sided drill. There is no fear of going through either at the apex or at the walls, besides which it gives a maximum of strength in the post where it is needed, while it is reduced to a minimum where no strength is required. I may also point out the advantages of a cone in fixing with cement. It clears itself as it goes into position. There is no pain in pushing it home, and none of that thrusting back which is the case with straight and square-ended posts. Of course, this form of post is particularly adapted for teeth with one nerve canal. They will, however, be found most useful for first upper bicuspids, using for these one canal only, whichever is most suitable, and filling the other.

So also for molar porcelain crowns, the post being fixed in the palatal root only. In these cases I have found the cones most useful, entirely obviating the difficulty experienced with the use of straight pins. I refer to the difficulty of getting the finished cap and pin into position, which arises in consequence of the divergent angle between cap and pin. You will see that with the conical post the fine point first enters the bored hole at its greatest circumference, thus affording ample side room to clear itself and get up to the required position without the post in its upward movement becoming wedged or cramped.

When I used a straight pin I invariably found that I could not get the post, collar and cap into position without enlarging the bore considerably. This is manifestly a great defect, even when got into proper position, because it compels the undue enlargement of the bore in comparison with the size of the pin, and the pin does not accurately fit the bore, so that it is necessary to rely for fixity and durability on the cement rather than on the perfect adaptation of the post to the walls of the tooth.

Another useful feature is its use in the fixing of bridges. Take, for example, a lower bridge extending from first bicuspids to second molar. Say the molar tilts forward and that a porcelain face is to replace the bicuspids made with an ordinary straight piece, it happens that as soon as one gets the molar into position the pin for the bicuspid strikes wide of its mark, *i.e.*, outside the circumference of the bore. This does not transpire with the cone post, for, as before explained, it enters with its point into the largest circumference of the bore and has ample room to clear the walls of the bored root before it can become cramped or wedged.

This, gentlemen, finishes my advocacy of this form of post. I have endeavoured not to weary you with details with which you are already familiar, but have brought before you just the special merits which in my humble opinion this post possesses over others. It now only remains for me to thank you for your attention, and to express the hope that some of you may find this new post as useful in your practice as I have found it in mine.

Another Method of Replacing Porcelain Faces on Crown or Bridges.

BY CHARTERS BIRCH, L.D.S.

IN cases where the method described in the September JOURNAL is inapplicable, the following may perhaps prove acceptable. It was introduced by Dr. Bryan, and at his suggestion the S. S. White Co. placed upon the market an outfit known as Dr. Bryan's Bridge Repair Outfit, price 12s., obtainable from any of the dental depôts. In my hands the outfit has proved most valuable, enabling me within an hour to replace porcelain facings which, by any other method, would have taken considerably longer.

The porcelain facing having broken from a crown or bridge, the fragments of tooth are cleared away, the platina pins levelled down to the backing, and holes drilled through the centre of the pins and reamered large enough to allow the pins of a flat-back tooth to pass through easily. A piece of wire the size of the platina pins, and about one inch in length, is bent into a staple and passed through the holes from the front, a piece of soft godiva placed between the teeth, bitten upon, the surplus pressed over the protruding bent wire well into the space of missing tooth and the fronts of adjoining ones, is cooled by syringing cold water upon it, and when quite set withdrawn, bringing the wire staple away imbedded in itself.

The impression thus obtained is surrounded with a piece of rubber tubing, pipeclay or putty, and fusible metal poured in. Upon removal of the godiva and withdrawal of the wire staple, a correct metal model of the space where the new tooth has to be fitted, with the holes for the pins of same, will be obtained. All the above can be done in about ten minutes.

The metal model with tooth of suitable shade may be given to the mechanic, with the assurance that if the tooth be fitted to the model it will be an exact fit for the vacant place on the bridge. Whilst this is being done select from the Bryan outfit the taper right-angle bur (in ordering state kind of right-angle used), and with it reamer out the holes on palatine surface of bridge sufficiently deep to allow the taper gold-nuts supplied with the outfit to almost reach through. With No. 1 screwing-tool tap a thread upon each platina pin of tooth, complete the thread with No. 2 tool, try the nuts upon each pin, and if correct the tooth is ready for fixing.

Dry the tooth and backing, place roll of absorbent paper under the lip to keep away moisture, then with articulating paper fine, fit tooth to place, screw taper nuts on to the pins from back with screw-driver provided, and be sure they are screwed well home. If the tooth fits perfectly and is quite firm unscrew the nuts about half way, mix a little white cement rather thin, and run between the tooth and backing, screw the nuts quickly home, then grind and polish any part protruding at the back.

I showed a full upper bridge with teeth fitted in this manner at the British Dental Association meeting held in Dublin, 1897, also at the Midland Branch meeting at Scarborough last year, where its applicability for replacing any of the anterior teeth on gold or vulcanite dentures was demonstrated. Full descriptions of the appliances and illustrations of its use will be found in the *Cosmos* for April, 1891 (pages 262-268).

Abstracts and Translations.

On the Various Alterations of the Hard Tissues in the Lower Vertebrate Animals.

BY DR. MED. C. ROSE (MUNICH).

(*With* 28 *illustrations.*)

(Translated for this Journal from the *Anatomischer Anzeige.*)

(*Continued from page* 32.)

THE extremely small vitro-dentine teeth of young haddocks can also develop their change of substance without any special nutritive organs. When, however, the thickness of the dentine layer in larger teeth increases, special protoplasmic nutritive organs must exist. The outermost cells of the odontoblasts in the dentine canals generally serve as such. But, should a tendency to a reformation of these outer cells predominate, new nutritive organs must be provided. In certain species of the osseous fish the reserved blood capillaries develop themselves as such. Frequently, both kinds of nutritive organs occur at the same time. Thus, we see in fig. 4, in the teeth of the Gadus æglefinus (cod), that the periphery of the tooth bone is permeated for a short distance by small canals of dentine. In consequence of the fact that the odontoblasts have lost their outermost dentinal processes, the small canals of the tooth bone suddenly cease, and for some distance hard dentine ensues (V.D.). Further towards the pulp, blood capillaries appear and vaso-dentine arises (Va. D.) Thus we see the three changes of true dentine, following direct upon each other within the same tooth.

True vaso-dentine has hitherto only been proved in some species of osseous fish, and is of quite recent formation. Without mentioning living osseous fish, in which Tomes has already described vaso-dentine, I find this hard tissue also developed in fossil fish, viz., in the Empo- and Pachyrhizodus from North American chalk. In older deposits, and in other species of vertebrate animals vaso-dentine has hitherto not been known.

We will now consider the subject of the hard tissue so widely distributed among fish, which Owen incorrectly describes as vaso-dentine and Tomes as osteo-dentine. The teeth to which hitherto Owen's vaso-dentine has been ascribed, are distinguished by the fact that the hollow in the pulp of the tooth is split up into numerous canals, sometimes running in a parallel direction, sometimes branching out in many directions. The hard tissue of the central portion of the tooth traversed by short dentinal tubes is arranged in concentric layers around the single channels of the pulp. The outer mantle of such a tooth consists of a layer of pure dentinal tubes, more or less thick, growing on one side.

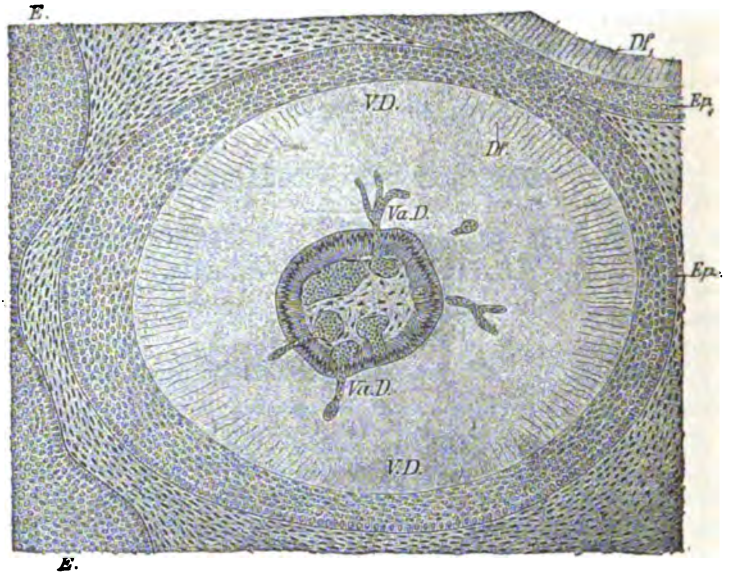

FIG. 4.—GADUS ÆGLEFINUS (COD). TRANSVERSE SECTION OF THE BASAL PORTION OF MANDIBULAR TEETH OF A YOUNG ANIMAL.

E., jaw-bone epithelium. Ep., epithelium sheath. Ep.$_1$, epithelium sheath of the contiguous tooth only partly represented. Df., small dentinal tubes. Df.$_1$, small dentinal tubes of the contiguous tooth. V.D., vitro-dentine. Va.D., vaso-dentine. × 128.

Figs. 5—8 give a sufficiently clear insight of the structure of such "teeth with embranched pulp-cavity." Even the divisional stripes of the dentinal channels point to the fact that the outer dentinal mantle represents pure dentine growing on one side, which has originated from the inner area of an epithelium sheath; its developmental history confirms, in fact, this acceptation. But how does the intricate hard tissue of the central portion of the tooth arranged in numerous concentric layers arise? (Figs. 5—8. Tr. D.)

From the first one could presume two things possible. On the one hand it was conceivable that the epithelium sheath should close towards the base, the connective tissue papilla in a similar manner as in the formation of the molars of mammalia, having several roots; excepting where the blood vessels and nerves originate. Along the branches of these vessels and nerves the epithelium sheath, hitherto uniform, continues growing in the form of several

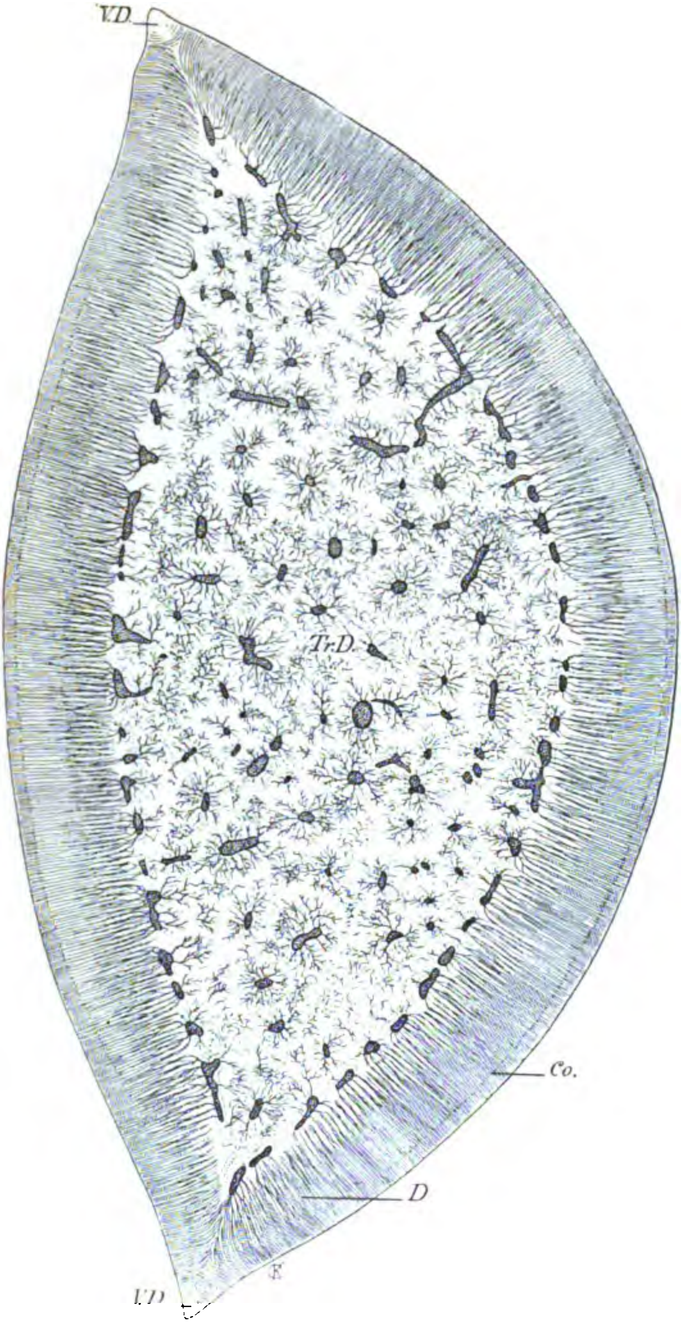

FIG. 5.—CARCHARODON ANGUSTIDENS. EOCAN VON KRESSENBERG. TRANSVERSE SECTION THROUGH THE TIP OF THE TOOTH.

Tr.D., trabecular dentine. V.D., vitro-dentine. D., tubular dentine. Co., divisional stripes. × 26.

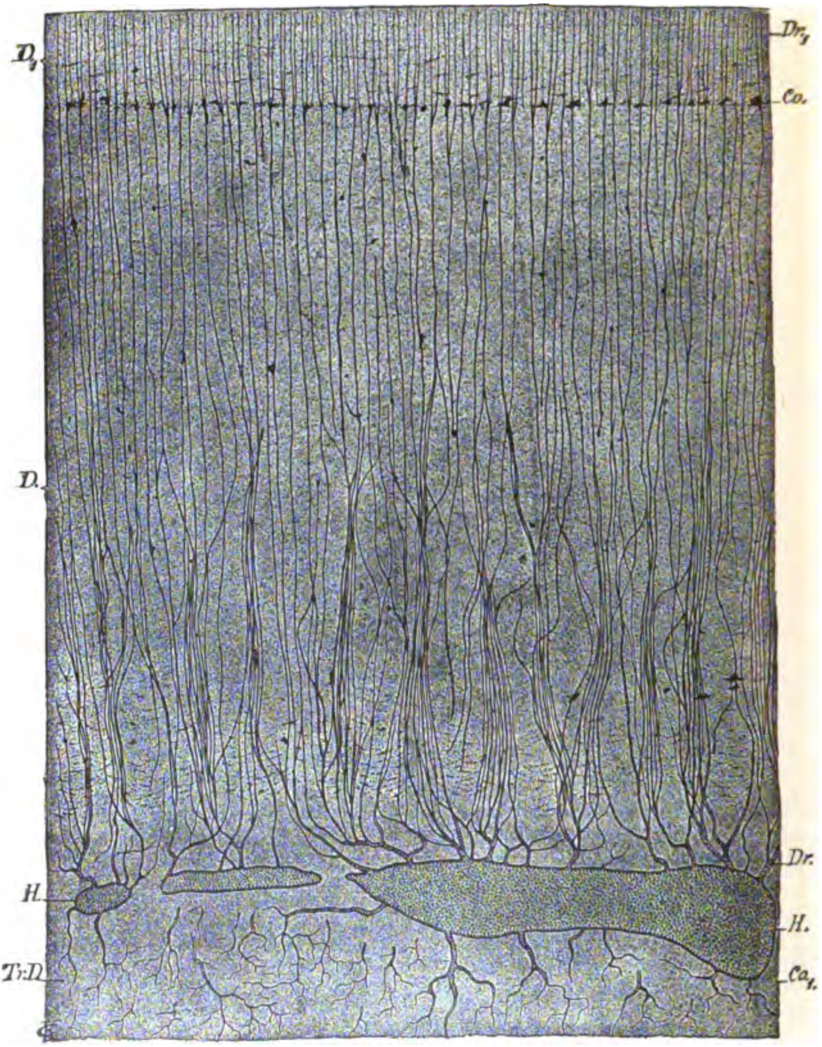

FIG. 6.—CARCHARODON ANGUSTIDENS EOCAN VON KRESSENBERG. TRANSVERSE SECTION THROUGH THE TIP OF THE TOOTH. PORTION OF MARGINAL DENTINAL BONE OF FIG. 5 MORE HIGHLY MAGNIFIED.

Tr. D., trabecular dentine. H., Haversian canal at the edge of trabecular dentine and pure dentine (D. & D.$_1$). Co., strongly marked contour lines with interposed interglobular spaces. Dr., terminal ramifications of the dentinal tubes (Dr.$_1$). Co.$_1$, layer streaked with trabecular dentine. × 200.

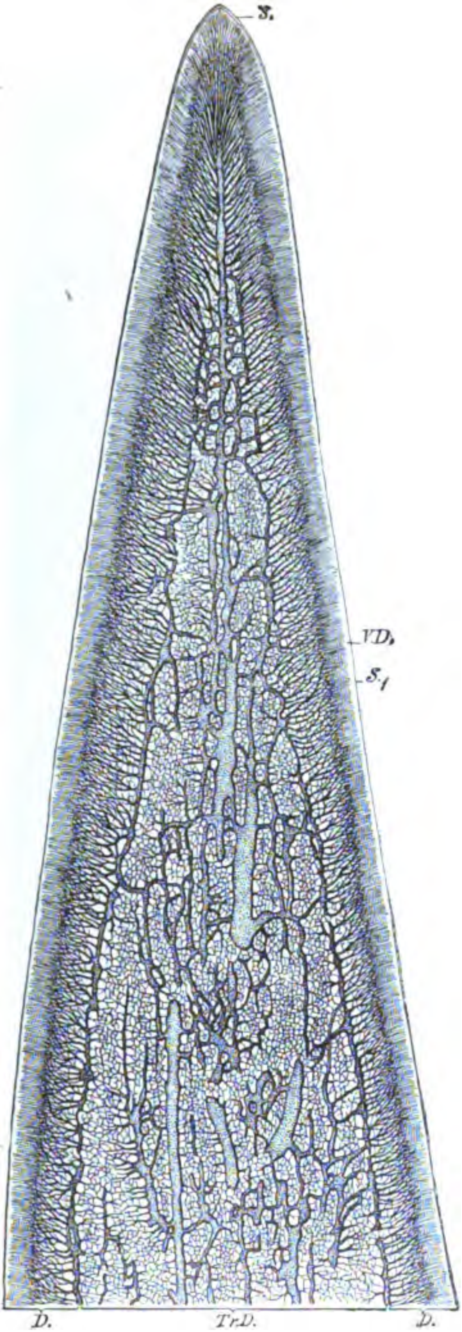

FIG. 7—ESOX LUCIUS (PIKE) LONGITUDINAL SECTION THROUGH THE TIP OF A MANDIBULAR TOOTH.

Tr.D., trabecular dentine. D., tubular dentine. V.D., vitro-dentine. S., enamel covering of the tip. S.,, immeasurably thin continuation of enamel covering on lower part of tooth. × 33.

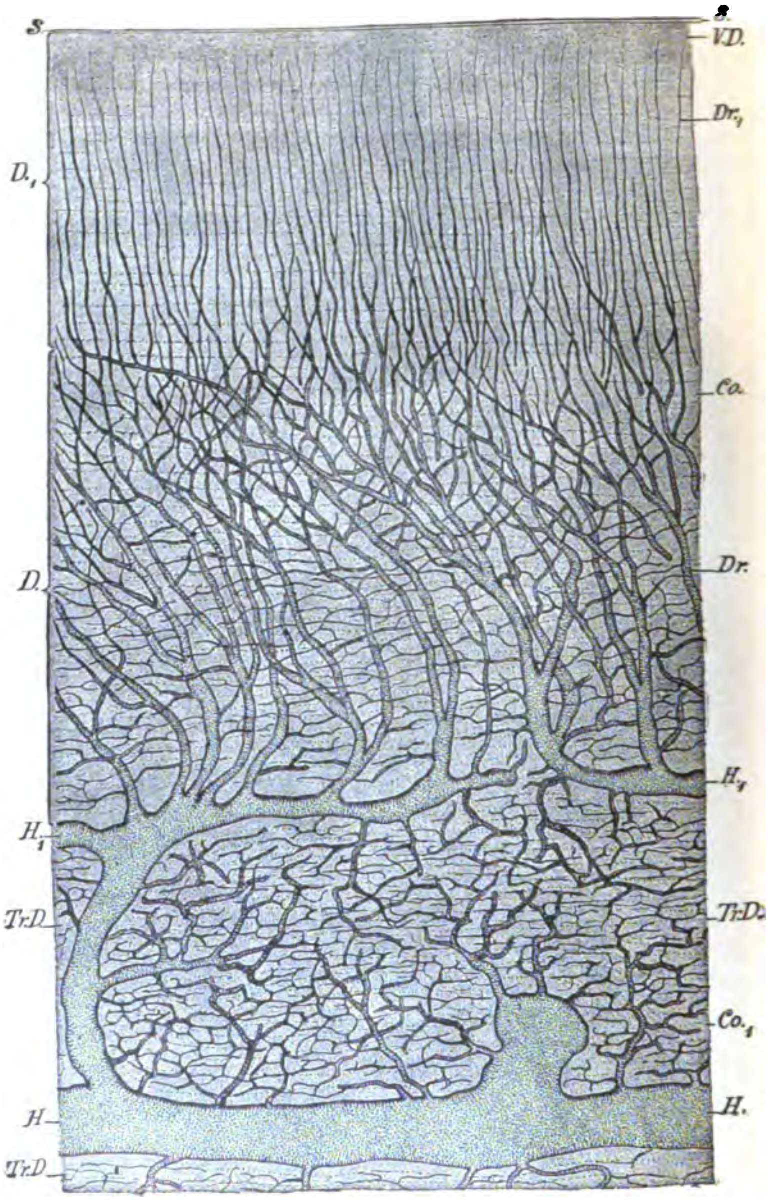

FIG. 8.—ESOX LUCIUS (PIKE). LONGITUDINAL SECTION THROUGH THE TIP OF A MANDIBULAR TOOTH. PART OF FIG. 7 MORE HIGHLY MAGNIFIED.

Tr.D., trabecular dentine. H., thicker Haversian canals. H.$_{1}$, thinner Haversian canals at the ridge of true dentine. D., inner layer of true dentine with thicker dentinal tubes branching out in many directions. Dr., those originating from Haversian canals at the ridge. D.$_{1}$, outer layer of pure dentine with parallel external processes Dr.$_{1}$, of the dentinal tubes. V.D., vitro-dentine. S., enamel. Co., divisional streaks of dentine. Co.$_{1}$, divisional streaks of trabecular dentine. × 450.

narrower epithelium tubes, and thus, in the case of mammalia occasions the formation of several roots. Now if one presumes that around these secondary epithelium tubes the former common epithelium sheath is likewise still preserved, then the possibility of the origin of teeth with ramified pulp-cavities is given. In this case the contiguous tubular systems of the central portions of the tooth must certainly have been separated from one another by supplementary deposited cement. This supposed cement, I could however, authenticate nowhere.

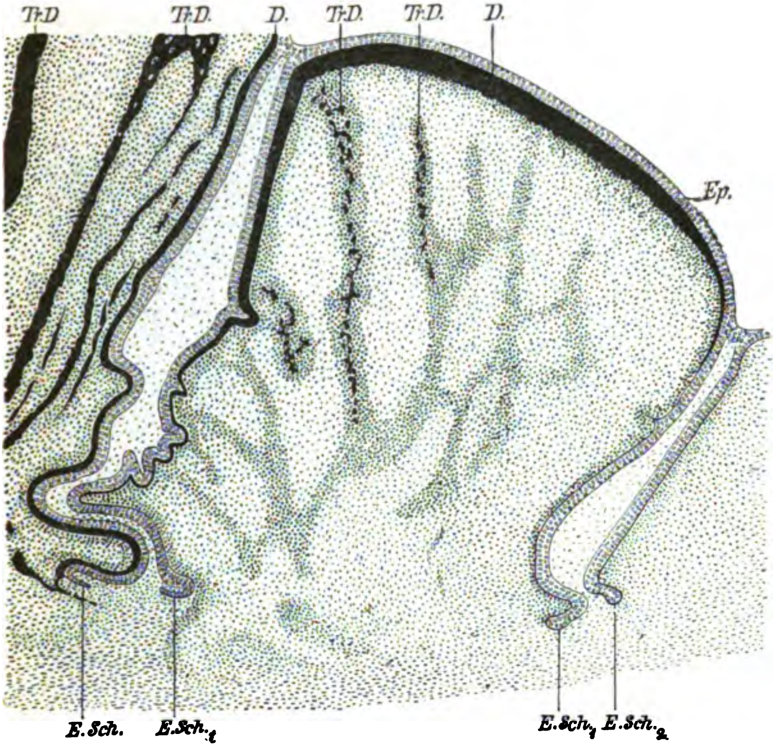

FIG. 9.—MYLIOBATIS AQUILA. LOWER JAW. PENULTIMATE SUCCESSIONAL TOOTH OF A YOUNG ANIMAL WITH PARTS OF THE LAST, AND ANTEPENULTIMATE SUCCESSIONAL ADJACENT TOOTH.

D., pure dentine. Tr.D., trabecular dentine. Ep., epithelium remains of the not fully preserved tooth-band. E.Sch., E.Sch.$_1$, E.Sch.$_2$, lower part of epithelium sheaths of antepenultimate, penultimate, and last supplementary tooth. × 40.

There still existed now the other possibility—viz., that the dentine-like hard tissue in the inner part of the teeth might originate quite after the manner of bone, free in the connective tissues of the pulp, independently of the epithelium sheath. The history of the development decided in favour of the latter supposition. The doubtful points were most beautifully discerned in preparations of myliobates, which Dr. Treuenfels kindly lent me for examination.

Dr. Treuenfels[1] himself has but lightly touched on the point in question in his Dissertation Work, and asserts that the dentine-like papillæ in the inner part of the pulp-cavity always originate in the marginal dentine, and that they were never formed spontaneously in the pulp. But from Treuenfels' own microscopical preparations, it is most clearly perceived that this view does not agree everywhere.

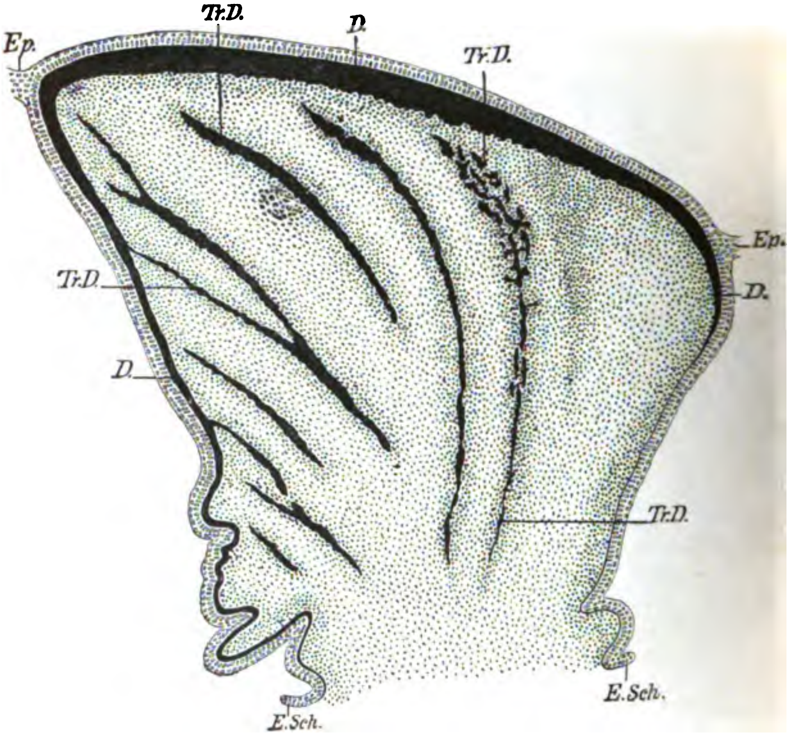

FIG. 10.—MYLIOBATIS AQUILA. UPPER JAW. PENULTIMATE SUPPLEMENTARY TOOTH OF THE SAME YOUNG ANIMAL.

Tr. D., trabecular dentine. D., pure dentine. Ep., epithelium remains of a not completely preserved tooth-band. E.Sch., lower ends of the epithelium sheath. × 40.

Fig. 9 shows a young successional adjacent tooth of Myliobatis aquila. The large space in the pulp cavity is surrounded by a connected epithelium sheath (E. Sch.,) under the same, especially at the tip, and at the front edge of the tooth-germ a layer of marginal pure dentine has been deposited. In the interior of the pulp-cavity arise rod-like tracts of closely crowded globular cells and separate from the remaining tissues. Within these rod-like accumulations of cells, single flakes of a structureless hard tissue separate themselves exactly in the same manner as in the first layer of pure bone. Through overgrowth of these small flakes there arise very quickly, and continually forming, small rods of a still structureless hard substance (figs. 9 and 10, Tr.D.)

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[1] Treuenfels, "Teeth of Myliobates-aquila." Inaug. Dissertation, Basle, 1896.

The single rods overgrow everywhere to a jagged rod-work, and we have now before us the commencement of that hard tissue which I would like to designate as "trabecular-dentine" or "rod-dentine." By the further increase in thickness, small canals make their appearance in the rods in the same manner as in pure dentine. These rods continue to thicken at the expense of the tissue of the pulp-cavity intermingling more and more (fig. 11). Finally, there have remained in the finished tooth in place of the large uniform embryonic pulp-cavity, separate tubular-shaped canals as nutritive organs (figs. 12 and 13). Without mentioning the succession of developments in question, one can easily follow the gradual growth of trabecular-dentine also in uncalcified transverse sections of fully formed teeth in the course of the divisional streaks and dentinal canals. In fig. 13, one sees how the gradual compression of the channels (H.) of the pulp cavity have originated. Those parts of the tubeless tissue between the separate tubular systems represent

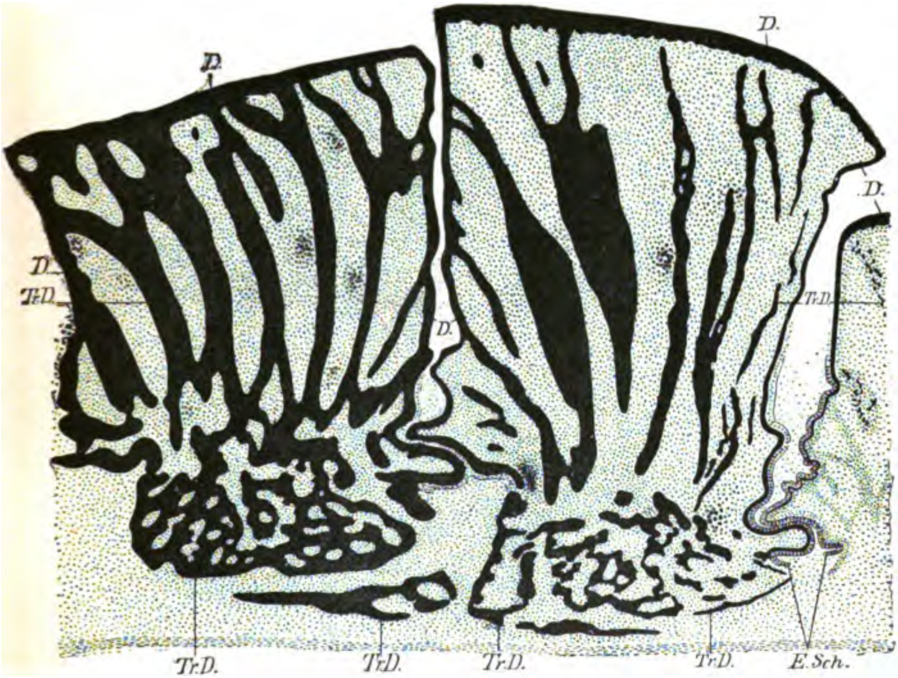

FIG. 11.—MYLIOBATIS AQUILA. LOWER JAW. ANTEPENULTIMATE AND FOURTH FROM END, ADJOINING SUCCESSIONAL TOOTH OF A YOUNG ANIMAL.

D., pure dentine. Tr.D., trabecular dentine. E.Sch., remains of epithelium sheath. × 25.

the oldest structureless deposits of dentinal rods, which can best be designated as "vitro-trabecular dentine" or as "osteoid tissues."

Whilst pure dentine possesses towards the exterior always a smooth surface, and is always of unilateral growth, the rods of trabecular-dentine grow like

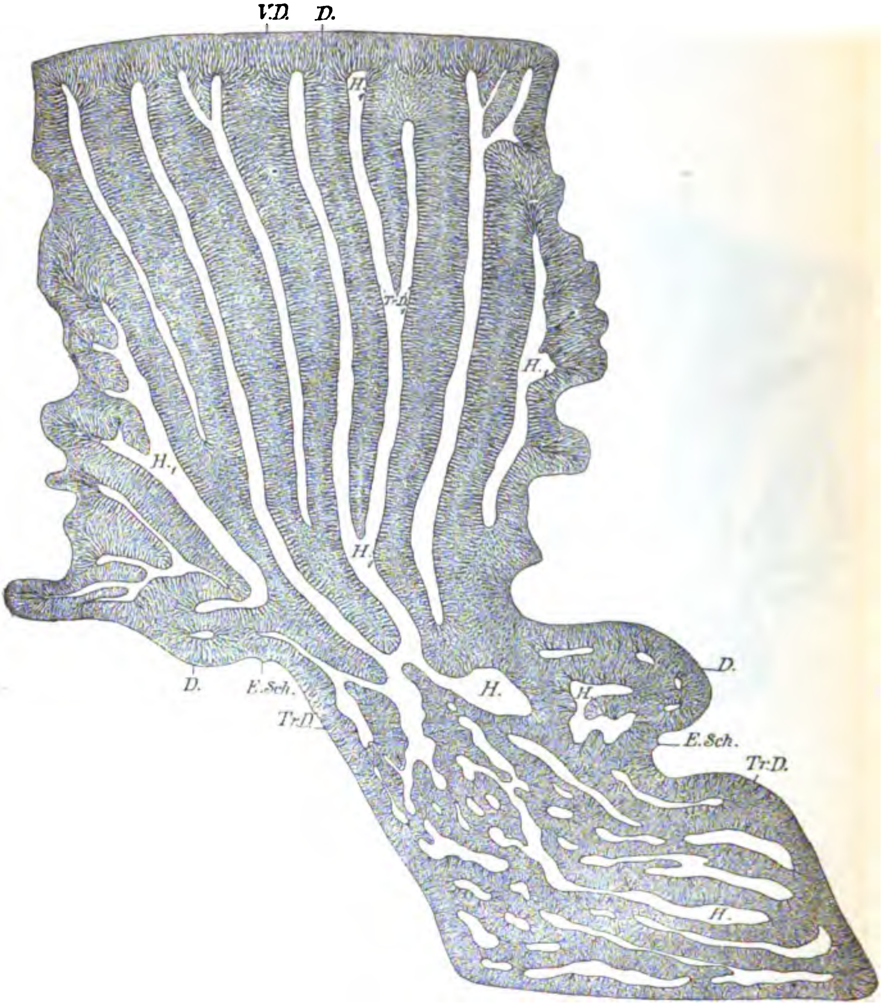

FIG. 12.—MYLIOBATIS AQUILA. LONGITUDINAL SECTION THROUGH THE FULLY-FORMED TOOTH OF A FULL-GROWN ANIMAL.

D., pure dentine. Tr.D., trabecular dentine of the socket of tooth. Tr.D.,, trabecular dentine of the crown of the tooth. E.Sch., border of former epithelium sheath. V.D., vitro-dentine. H., Haversian canals of tooth-socket. H.,, pulp-canals of coronal portion of the tooth. × 26 bone all round and possess a less sharply ridged surface. The essential importance of the epithelium sheath for the formation of pure dentine can best be discerned from figs. 14 and 15. The first figure, moderately magnified, represents the lower parts of the epithelium sheaths of two contiguous successional teeth of Myliobates. The epithelium sheaths then disperse, corresponding to the shape of Myliobatis teeth, in an S-shaped curve, turn suddenly at a sharp angle from their customary course and become functionless. The functionless end of the left side epithelium sheath is again represented in fig. 15 highly magnified. One sees distinctly how the pure dentine of unilateral growth reaches quite up to the lower boundary of the functional epithelium sheath, consisting of high cylindrical cells. Where the epithelium sheath becomes functionless a small indentation of trabecular dentine growing all round joins the pure unilaterally growing dentine immediately (fig. 14, O.D., fig. 15, Tr.D.).

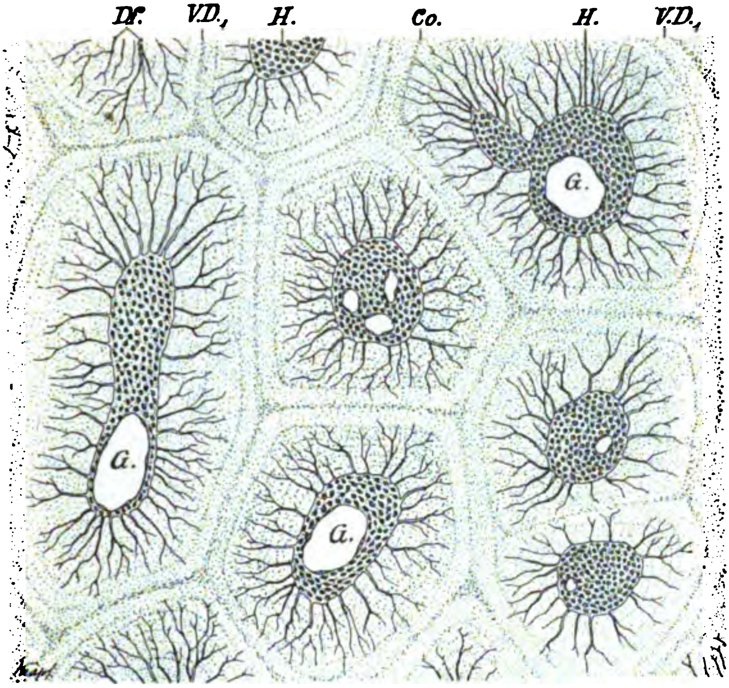

FIG. 13.—MYLIOBATIS AQUILA. TRANSVERSE SECTION THROUGH THE UNCALCIFIED TOOTH OF A FULLY-DEVELOPED ANIMAL.

H., canals of the central portion of tooth or Haversian canals. G., blood-vessels within the same. Df., protoplasmic dentinal fibrils which fill up the dentinal canals. Co., divisional streaks. V.D.,, vitro-trabecular dentine or osteoid tissue. × 144.

The odontoblasts of pure dentine have, like the formative cells of trabecular dentine, quite the appearance of osteoblasts. If one wishes further to distinguish odontoblasts form osteoblasts, and not choose to make use of the commonly used name "scleroblasts" introduced by von Klaatsh, new concise definitions must be introduced. It would be commendable in the future to define only those dentine-forming cells that form themselves along an epithelium sheath as "odontoblasts," quite indifferently, whether one refers to multangular cells below or cylindrical cells above. Hence the name odontoblasts belongs only to those formative cells of pure dentine. The formative cells of trabecular dentine, osteodine, and of the bone tissues, which have never had any connection with an epithelium sheath, should, on the other hand, be defined as osteoblasts.

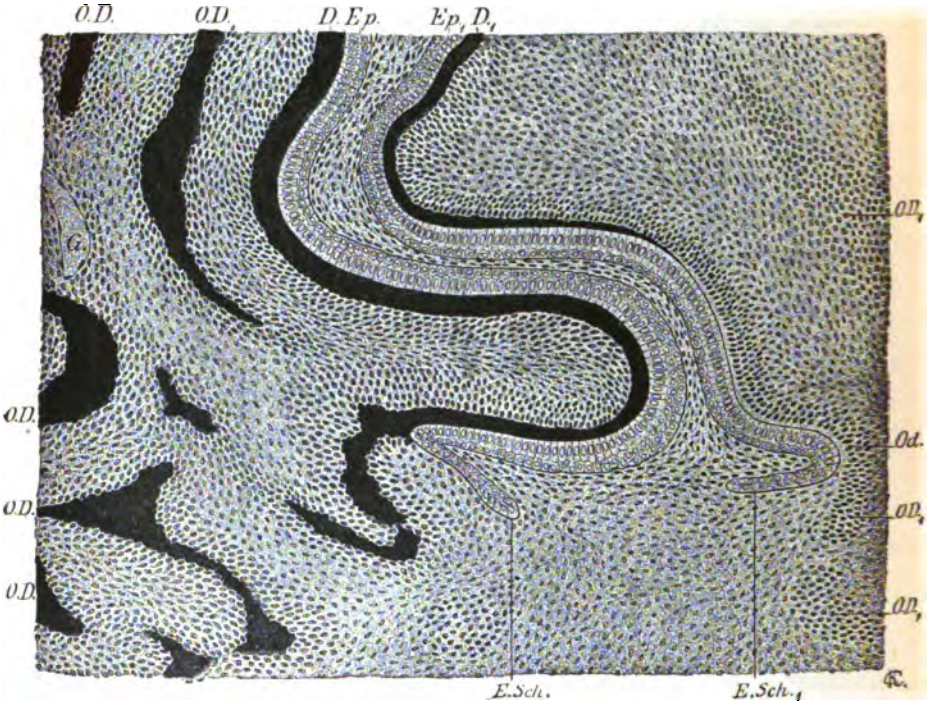

FIG. 14.—MYLIOBATIS AQUILA. LOWER PARTS OF ENDS OF EPITHELIUM SHEATHS OF TWO CONTIGUOUS TEETH OF A YOUNG ANIMAL.

E.Sch. and E.Sch.$_1$, functionless ends of epithelium sheaths of older and younger teeth. Ep. and Ep.$_1$, functional part of epithelium sheath. D. and D.$_1$, pure dentine. O.D., trabecular dentine. O.D.$_1$, formative cells of trabecular dentine (osteoblasts). Od., formative cells of pure dentine (odontoblasts). × 140.

In the teeth of Pike the development of trabecular dentine takes place in exactly the same manner as in Myliobates, only the development proceeds much more quickly. As soon as the marginal pure dentine has attained a certain thickness, calcified rods of trabecular dentine shoot through the whole mass of the central portion of the tooth, as Tomes very correctly describes. Fig. 16, again, gives a portion of the transverse section of a young pike's tooth. Trabecular dentine does not so completely fill up the pulp cavity in the teeth of young pike as in the teeth of older animals.

The stereotype plates of illustrations 14 and 16 had already been completed for some time when I still considered Tomes' proposed definition as correct; therefore in both illustrations trabecular dentine has been marked O.D. instead of Tr.D.

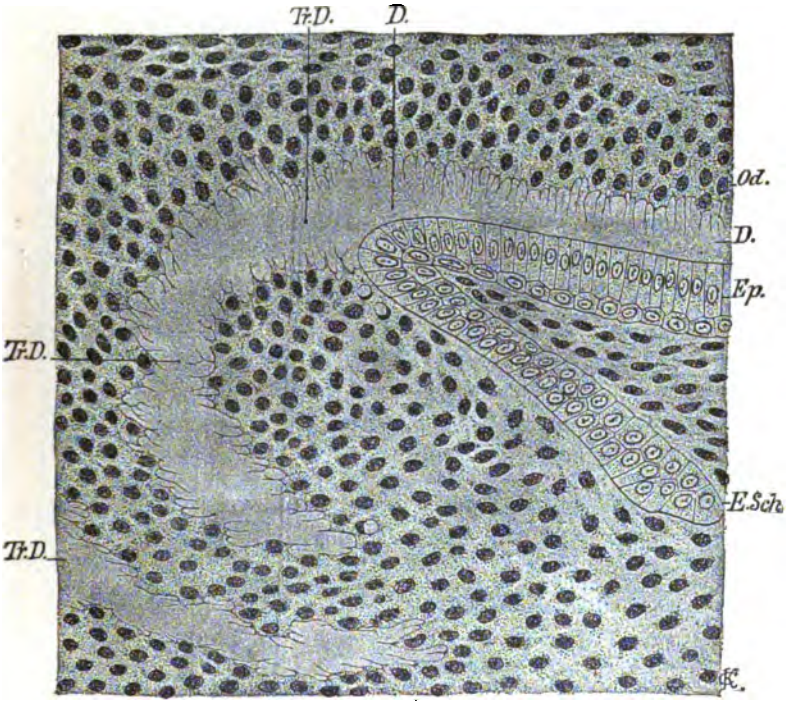

Fig. 15.—Myliobatis Aquila. Lower part of left-sided Epithelium Sheath of Fig. 15 highly magnified.

Ep., functional epithelium sheath. E.Sch., functionless end of epithelium sheath. D., pure dentine. Tr.D., trabecular dentine. Od., odontoblasts. × 450.

The jaw-bone teeth of embryonic Pike, and even the small gum teeth of young Pikes, consist only of pure dentine with single pulp cavity. It is only with the increasing growth of Pike teeth that trabecular dentine increases more and more in the interior space of the pulp.

The peculiarly formed folded teeth of the Stegocephali Crossopterygi partly arose in such a manner that the epithelium sheath really folded itself. Then supplementary bony cement tissue deposited itself in the dentine and penetrated far into the folds of the tooth. These circumstances we find in the Crossopterygi, Rhizodus, Megalichthys and Cricodus. Consequently here there is a question of real folds of pure dentine.

The folded teeth of the Stegocephali and Crossopterygius Dendrodus arose in an essentially different manner. Here the epithelium sheath formed only shallow indentations. From the inwardly projecting edge of these epithelium sheath-indentations unenveloped, small vitro-trabecular dentinal rods grew, at first as single partition-walls, afterwards like straggling winding bands, into the interior of the pulp cavity. Then, from out of these vitro-trabecular dentinal bands small dentinal canals issue from all sides exactly as from the pure vitro-dentine, formed under the epithelium sheath (fig. 18 V.D.). The pure vitro-dentine passes direct into the vitro-trabecular, dentinal bands, and is not discernible from it in its structural tissue. It is only by the course of the contour lines and small dentinal canals that we can affirm that the unilaterally growing tissue of the one side is formed of odontoblasts, and the other of dual growth of osteoblasts. In the Stegocephali teeth, even in the Mastodonsaurus, there is still to be found in the middle of the tooth the remains of a uniform pulp cavity. In the Dendrodoa the latter disappeared,

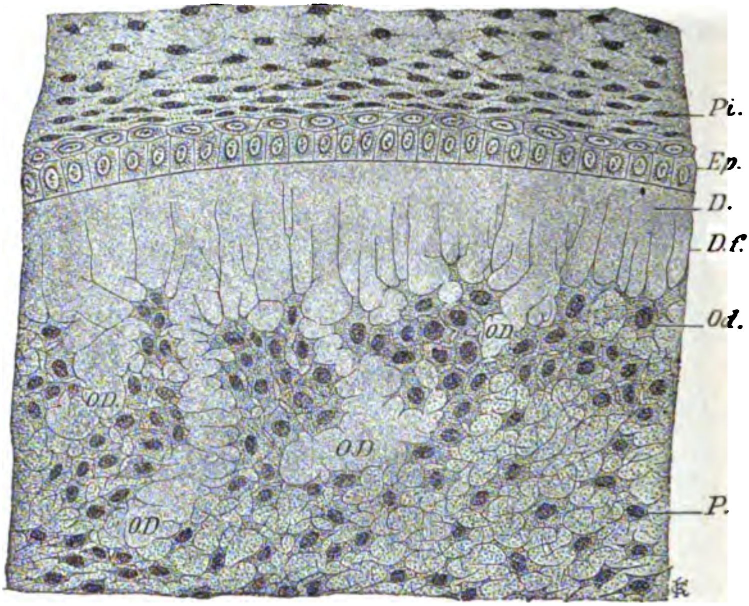

FIG. 16.—ESOX LUCIUS (PIKE). TRANSVERSE SECTION OF THE MANDIBULAR TOOTH OF A YOUNG PIKE.

Ep., epithelium sheath. D., pure dentine. Df., continuation of dentine of odontoblasts. Od., P., cells of the pulp. O.D., small rods of trabecular dentine. Pi., Pericementum. × 600.

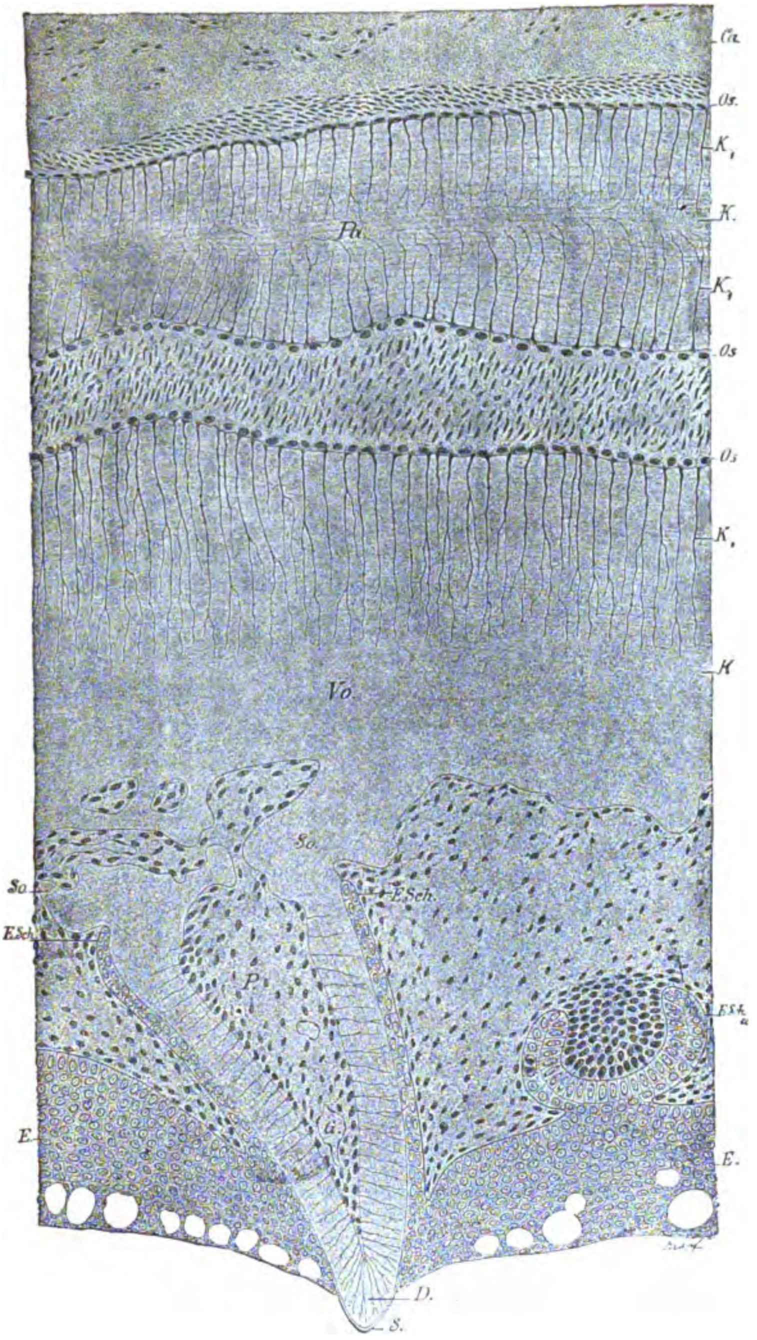

FIG. 17.—ESOX LUCIUS (PIKE). TRANSVERSE SECTION OF THE GUMS OF A YOUNG ANIMAL.

Vo., vomer. Pa., parasphenoid. Ca., cartilage. Os., osteoblasts. K., unenveloped bone (osteoid tissue). K.$_1$, tubular bone. D., dentine of an active small gum tooth. S., enamel. P., pulp. So., tooth socket. E., gum epithelium. E.Sch., epithelium sheath of active tooth. E.Sch.$_a$, epithelium sheath of young tooth germ. × 220.

and trabecular dentine developed in its place. As a final result we have an extraordinarily intricate tooth structure, in which the separate original elements cannot easily be distinguished from each other.

As regards the true bone, one has been accustomed to look upon the existence of small bony bodies as essential to this hard tissue. But Koelliker has already affirmed, in 1859, that real skeleton bones occur in osseous fish, which contain no protoplasmic enclosure. Koelliker[1] called this hard tissue

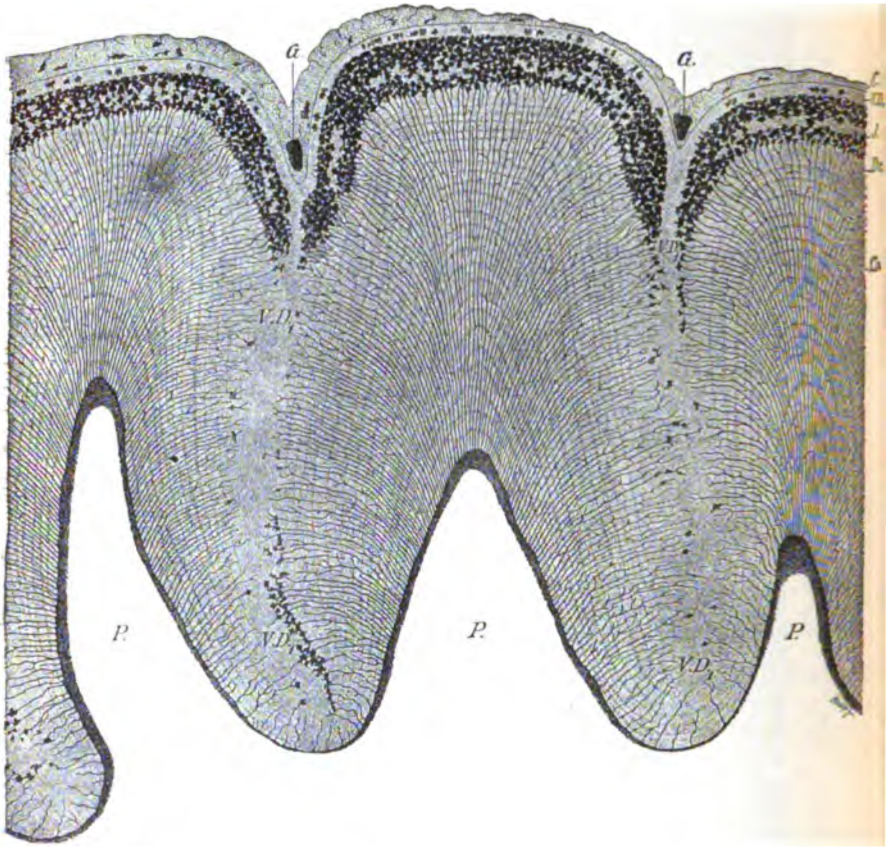

FIG. 18.—SCLEROCEPHALUS LABYRINTHICUS. TRANSVERSE SECTION OF THE UPPER PART OF A JAW-BONE TOOTH, WITH THE BEGINNING OF FOLDED STRUCTURE.

P., point of the folded pulp cavity. C., cementum. G., canal vessels of the cementum. V.D., vitro-dentine. V.D.$_1$, vitro-trabecular dentine. Dr., dentinal tubes. J., bulky accumulated interglobular spaces. Co., divisional streak. × 105. According to a preparation of H. Credner.

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[1] Koelliker, "Concerning Different Types of the Skeletons of Osseous Fish," "Treatise on Phys. Med. History," Würzburg, 1859.

"osteoid tissue." Koelliker further asserted that in certain families (of osseous fish) dentine-like tubes are also found beside the bone cells, as in the "Ganoid."

As seen in fig. 17, unenveloped and tubular bone tissues can make their appearance next to each other at the same time in the same skeleton bone ; as, for example, in the "vomer" of the Pike. The small tubes of the bone are perfectly homogeneous to those of pure dentine and of trabecular dentine. They contain protoplasmic processes of the osteoblasts.

The transition of these cell processes into the body of the osteoblast cells can be proved without any doubt by a good microscopical preparation. Most osteoblasts send forth only one process into the bone, but many cells, two or three, just in the same manner as the odontoblasts of pure dentine.

(*To be continued.*)

Upon Röse's Proposed Classification of the Forms of Dentine.

By CHARLES S. TOMES, M.A., F.R.S.

(From the *Anatomischer Anzeige.*)

In the September and October issues of this journal (Bd. 14, No. 1, 2 and 3) Dr. Röse has attempted to draw up a comprehensive scheme of classification of the various forms of calcified tissue which are met with in the vertebrata, and in so doing has criticised and suggested modifications of a scheme of classification of dentines which I propounded a good many years ago.

I am not so well satisfied with my own scheme that I do not desire to see it amended; in fact, I have myself pointed out that classification of the varieties of dentine is not altogether satisfactory, and in the last edition of my "Dental Anatomy" (fifth edition, 1898) I have modified it a little. Moreover, I am far too well aware of the great debt which all students of odontology owe to Dr. Röse to be in the least degree inclined to criticise in any captious spirit anything which he may write, but, on the contrary, am predisposed to receive it with appreciation.

But in this paper my name occurs repeatedly, the author sometimes agreeing with me, and sometimes differing from me, and were I to pass it over in silence it might appear as though the arguments which it contains were convincing to me, whereas I think that I can show that the evidence adduced in it is insufficient to justify the proposed changes.

A scheme of classification may be examined in two ways: we may scrutinise its theoretical claims for adoption, or we may apply it to practice and see whether the result to which it leads us is in accord with knowledge already existing. Now with every respect for Dr. Röse's well-earned authority, it appears to me as though his classification did not come satisfactorily out of either of these tests, even though we travel little beyond the illustrations of his own paper for our arguments, and I therefore wish to briefly point out some few instances in which it appears to me to break down.

He would define true dentine (dentin, orthodentin) as a hard tissue with a smooth surface, which grows on one side only, and which is developed under an epithelial sheath (enamel organ), and under this he groups as subdivisions normal tubular dentine, vitro-dentine, in which no protoplasmic processes occur, and vaso-dentine (using this latter term in the restricted sense, as I myself have applied it, and distinguishing it as the vaso-dentine of Tomes).

As he himself points out in another part of his paper, where he is criticising my old attempt at classification, any criterion which relates to development is not altogether convenient, as we do not always know about the development of the tissue which may be under observation, and he has unconsciously given an instance of this inconvenience in his paper, when he tells us inferentially how the tooth of an extinct creature, Sclerocephalus labyrinthicus, was developed, arguing backwards from the assumption, with which others may not agree, that his proposed criteria are quite reliable.

But I do not lay any stress upon this, as I do not see how any good classification of the sorts of dentine can be framed without reference to developmental questions.

To take first his definition of a true dentine, that it is developed under an epithelial sheath ; this is quite true of a large number of cases, but it breaks down when any attempt is made to use it as of universal application, and is therefore not good as a definition.

For instance, the tooth of Carcharias is made up of a body of fine tubed dentine, in all its appearances and in the manner of its calcification exactly like other fine-tubed dentines—in fact, a very typical ordinary dentine.

Outside this there comes a layer the nature of which has been the subject of some little discussion, most authors having however regarded it as enamel, though it has characters which are unusual in enamels, such as being laminated and being penetrated by outrunning processes of dentine matrix.

Into its real nature I do not propose to enter here, as I have lately published a paper on the subject (*Proceedings Royal Society*, February, 1898, Abstract), but it will suffice to say that upon the balance of its characters I regard it as enamel. Amongst other differences, it has no collagen organic basis such as all known dentines and bones possess.

Its development is very peculiar, for unlike enamels, such organic matrix as it possesses is furnished by a specialised layer of the dentine papilla, which corresponds in thickness to the ultimate so-called enamel, and over this there lie enormous ameloblasts (70 to 80 μ in length) which doubtless take some share in the process of its calcification.

This layer and its resultant so-called enamel are fully homologous with the similar structures in Lamna, only there, just as in Carcharodon figured by Dr. Röse, they overlie a mass of osteo-dentine (trabecular dentine of Röse) instead of fine tubular dentine, as in Carcharias. By the application of his own criterion Dr. Röse is bound to call this layer either enamel or true dentine, as it underlies the epithelial cells. As a matter of fact, he calls it true dentine, in which I do agree with him, as it differs very strongly in its chemical constitution, the manner of its development, and in many other points from any known dentine.

Still, so far as the present purpose goes, it might have been enamel, and so does not necessarily invalidate his definition ; but the case is quite different when we come to the fine-tubed dentine underneath it.

The calcification of this tissue takes place not at the surface of the dentine papilla, but commences along the inner border of the specialised layer already alluded to as forming the surface of the dentine papilla, and thence progresses inwards quite in the ordinary way. Hence it is not underneath an epithelial layer; it is separated from it by the whole thickness of the future so-called enamel, and so by Röse's definition is not a true dentine. Moreover, it stands in precisely the same relation to the enamel organ as does the osteo-dentine of his Carcharodon figure, or as does the osteo-dentine (trabecular dentine Röse) of Lamna.

But, as I have already mentioned, it is in every respect a most typical true dentine, and any criterion which would compel us to call it anything else is *ipso facto* condemned.

A new term has been introduced by Dr. Röse, namely, trabecular dentine, which, as applied by him, seems to me to result in grouping together some rather divergent forms, and moreover is, to me at all events, not readily intelligible in all its aspects.

This is defined as being a hard tissue, rich in short dentinal canals, but not growing immediately beneath, and in dependence upon, an epithelial sheath, and as capable of increase in all directions.

The example given is Myliobates, and the semi-diagrammatic figures show bands of calcification shooting down through the pulp; this is embraced over all by an epithelial sheath, which does not dip in towards the areas of calcification, but remains smooth and simple. The completed tooth of Myliobates, as is well known, consists of a number of round parallel pulp canals which run vertically upwards but do not reach the surface; from each of these pulp canals dentinal tubes radiate on all sides, thus constituting a number of parallel systems.

The boundaries of the several systems as seen in cross section are more or less hexagonal, the form which is assumed by a number of plastic bodies originally round which are influenced by mutual pressure, as can be seen by looking at the impressions made by shot upon a wad, or upon the interior of a cartridge which has been fired, where the cardboard has been squeezed up between the shots.

Now, let us attempt to imagine what would happen if the trabeculæ which Dr. Röse figures as the commencement of calcification in the dentinal papilla of Myliobates, and which correspond to the outermost portions of each system, did increase on all sides (*allseitig*).

They would go on thickening till they began to nearly meet, and then their forms would be modified by mutual influence, and more or less regular hexagonal meeting lines would result, but these hexagonal boundaries would intersect the position in which the axial pulp canals really are, and the residual areas of soft pulp would, under such a supposition, lie not in the centres, but in the boundary lines of the several areas of calcification.

It seems impossible to conceive any way by which the ultimate structure of the tooth could be arrived at unless the commencing areas of calcification had the regular arrangement of the partitions of a honeycomb, in which case the term trabeculæ does not commend itself as appropriate, neither can its onward march be described as "*allseitig*," but rather as "*einseitig*."

Moreover, it seems hard to conceive this regular honeycomb form of the earliest calcification without a prior disposition of soft parts; without, in fact, there being practically a parallel series of pulps, in each of which calcification proceeded after the manner of a true dentine calcification.

My meaning may, perhaps, be made more clear by a comparison: the incisors of Galeopithecus, as is familiar to every student of odontology, have their edges divided into comb-like processes, each of which on tranverse section presents an axial pulp canal from which radiate dentinal tubes.

If we imagine a number of these processes packed side by side, and without their enamel coat, we should have a structure practically exactly like a transverse section of a tooth of Myliobates.

But these processes of the tooth of Galeopithecus are according to any conceivable definition made of true dentine, and so a term such as "trabecular dentine" applied to the tooth of Myliobates, which might also be described as a series of parallel denticles of true dentine, does not seem to help the understanding of its nature.

On the other hand, there are here, as in all other kinds of dentine, transitional forms which make classification difficult, and it was in view of these that I wrote: "Dentines which might be regarded as aggregations of fused parallel denticles, as forms of folded dentine, or as a transition towards a very regular osteodentine. Examples, Myliobates, Pristis" ("Dental Anatomy," p. 81).

Dr. Röse has discarded my subdivision "Plicidentine" which I had defined as a tissue "permeated with dentinal tubes, which radiate from a pulp chamber rendered complex in form by foldings in of its walls. Examples, Lepidosteus, Labyrinthodon . . ;" and most of the dentines therein included seem to have found their way into his trabecular-dentine class. Here, again, I cannot regard the alteration as altogether happy, as "plicidentine" appears to me to be a useful term, and quite descriptive of certain modifications of dentine.

If we take such tooth as that of Varanus, all its upper portion is a simple hollow cone and consists of what must by every one be admitted to be ordinary true dentine, but towards the base of the tooth it gradually becomes folded in, so that the surface is fluted.

Now, every possible gradation exists between this and the more complex foldings met with in Lepidosteus, Labyrinthodon and Dendrodus, which last Röse classes as "trabecular dentine."

Moreover, he figures a cross section of a fossil tooth which, so far as the arrangement of the dentine goes, would almost pass for a cross section of the base of a young tooth of Lepidosteus, and tells us, *ex hypothesi*, that this contains vitro-trabecular dentine which was not developed under an epithelial sheath.

But the development of the tooth of Lepidosteus is perfectly well known, and I have figured it ("Dental Anatomy," 5th edition, p. 63). There the dentine is forming from an odontoblast layer in quite the usual way that a true dentine develops, only it is from a folded, and not from a simple, pulp; and I fail to see why it is necessary to invoke the trabecular-dentine theory of formation in order to account for any part of the tooth of Sclerocephalus or of Dendrodus. But apparently Dr. Röse holds so strongly to his belief that a true dentine can only be formed under the influence of an epithelial sheath, that so soon as this is at a distance some other name must be applied to the tissue.

From these and similar considerations I think that the term "plicidentine" is worth retaining, whilst the application in practice of Röse's term "trabecular-dentine" and of its definition leads into anomalies and difficulties, so that I am reluctantly compelled to admit that a thoroughly satisfactory classification of dentines is yet to be sought.

Pyorrhœa Alveolaris. Personal Experience in Treatment.[1]

BY W. GEO. BEERS, L D.S., D.D.S. (MONTREAL).

WHAT we positively know about the pathology of pyorrhœa alveolaris might cover half a sheet of note paper. What we positively do not know would fill folios. Our investigations are like a deep dive into a dark sea, knowing nothing of the bottom, and uncertain of rescue; and while the regulation "twenty minutes" ought to suffice to tell all I know of my own experience in treatment, it would take hours to relate explorations in the realms of pathological speculation, and the many discoveries made of one's own etiological ignorance. We make a step towards knowledge when we discover and confess our ignorance, and perhaps one's frankness in this direction may be a little inspired by the feeling that his friends are in the same plight. Somebody said that while caries is the most prevalent disease in existence, there are more teeth lost by pyorrhœa alveolaris; but we have no statistical proof that this is true, and I am disposed to accept it as one of those hasty and epigrammatic statements which pass too current entirely because of their catching phraseology. We cannot assume that all teeth that are "lost" are lost legitimately. There are more illegitimate deaths than births. It is quite safe to suggest that thousands of teeth are "lost" by ignorance on the part of the patient, or mal-practice on the part of the dentist. It needs no extensive experience to assert, that the large proportion of "lost" teeth in the establishment of the quack dentist are like lost souls that have none but themselves to blame for their damnation.

We need no statistical proof to declare that the diseases which attack the soft and adjacent structures of the mouth, especially those intimately connected with the alveoli, are more difficult to treat, and more likely to recur, than those which attack the teeth themselves. The force of resistance (*vis medicatrix naturæ*) aid the soft structures: it is entirely absent in the hard, unless in the very exceptional and limited cases of arrested caries. Yet there is a limit to the tolerance which the soft structures exhibit, and when that limit is passed we observe irretrievable recession of gum, alveolar margins, entire destruction of the sockets and pericementum. There are a hundred questions which might be referred to, but however we may speculate on the etiology of this disease, I venture to express my belief that if we can take care of the gingival line, where the enamel and cementum join, or, in brief, of the gum tissue at the immediate neck of the tooth, the rest of the gum will largely take care of itself. In modern dental practice the abuses of the free margin of the gum are as daring as they are dangerous. It was not so in the olden time. The wisdom which only comes by experience is entirely absent in the army of young enthusiasts who revel in rubber dam, ligatures, clamp wedges, and who rush into the operating arena with all the devices of the dental engine, with its rapidity of movement and the many abuses with which it is charged. Overhanging fillings, the nidus they make for *débris* pressing on the interproximate spaces; the numerous mechanical injuries inflicted on the gingival line by clasps, unfinished margins of vulcanite pressing on the interproximate spaces so as to make deep pockets and ultimate gum recession—these are very ordinary exciting factors in bringing about the first stage of pyorrhœa. The interdependence of the teeth and gums is imperative. The teeth will be retained in the socket, it may be for years, but it is never for ever. The gums will tolerate an immense amount of mechanical and surgical abuse anywhere better than at the gingival line. Why is this? Because the soft glandular-like epithelium—though it is not a glandular structure—which lies at the neck of the tooth is composed of more delicate cells than elsewhere in the gums; its fibres are more intimately connected with the cementum; the cementum is thinnest as it reaches the neck of the tooth, and the peridental membrane depends for its tense hold on the roots upon the integrity of the fibres of the pericementum which unite with the cementum at the neck.

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[1] Read before the Maritime Dental Association, September, 1898.

I believe there are constitutional predisposing causes of pyorrhœa alveolaris, but in searching and speculating in that direction it is wise to search carefully for causes closer to view. We see mouths not only after or during illness, but in good health, which are human cesspools.

The etiology of caries is no longer a speculation; that of pyorrhœa alveolaris is entirely so. We know that it is a perversion of normal physiological action; that it is a deviation from the normal standard of health of the parts concerned, constituting a distinct disease that may end in the death and loss of the teeth. But we are not agreed as to whether or not it is infectious, local, constitutional, or both. It is a much named disease, whether it be called Rigg's pyorrhœa alveolaris, suppurative inflammation, phagedenic pericementitis. Is it due to salivary or sanguinary calculus, or both, or fungi, or bacteria? Is it wholly or in part due to traumatic inflammation? Is it a local expression of a systemic condition, and located in the mouth because of a predisposition of the gums, the pericementum and the alveoli? Is it a primary or a secondary lesion? Is it never present, excepting in a depraved state of the nervous system? Is it associated with gout, rheumatism, Bright's disease, locomotor ataxia, uterine troubles, and other constitutional complications; the excessive use of salt, or alcohol, which causes increased secretion of uric acid? Is the calculus uric acid? Is it connected with catarrh of the mucous membrane of the nose or pharynx, rachitis, tuberculosis, scorbutis, scrofula, chronic constipation, exanthematous diseases, malaria, diabetes, tabes dorsalis, dyspepsia, syphilis, anæmia, chlorosis, repeated pregnancy, bad air, bad food, hygienic neglect? Or will some Boston prophet arise, who will tell us that it and all other oral troubles are due to the presence of amalgam, as in the middle ages, earthquakes, tempests and epidemics were ascribed to the devil or the Jews. With all this bewilderment in etiology, how can our treatment be based upon anything better than empiricism? If the etiology is obscure, how can treatment be scientific? We must just console ourselves by feeling our way in the dark, and taking the consequences until some one lets in the light. Something must be done for our patients. The true cause of many a disease is obscure, but physicians do not despair and let the patients die if they can help it. Neither are we to abandon to the forceps, if we can help it, conditions we cannot explain—not even because we are sure of this much, that extraction always cures. So does the guillotine for ever cure migraine.

Before leaving this part of the subject I would like to ask you to obtain Dr. W. C. Barrett's "Oral Pathology and Practice," just issued, in which the question is carefully considered.

It is a well-known fact that there are general diseases successfully treated, the causes of which are as unknown as that of pyorrhœa. It is nothing to boast about that this has and can be done; it upsets our theories and teaching in the recognition of disease and its proper treatment.

I like Dr. Barrett's division of the disease into three conditions: the first entirely local, due to local irritation; the second distinguished by the nodular deposits on the root, and the formation of pockets; the third, due to, or coincident with, a depraved constitutional condition. The first is an advanced condition, of simple gingivitis; slight periostitis confined to the gingival margin, and the edge of the alveolus, demanding gentle brushing, massage with the finger. As a regular mouth wash for this condition I prefer tincture of pyrethrum. The pyrethrum root may be left in the best alcohol for a week. It is, I think, the best astringent we possess. It is well to remember that there is a time in this disease when it may be easily arrested, and that there is a time when it is too late. It is well to remember also, that by over-treatment we may actually produce to order acute inflammation from the simple irritation. So far as instrumental treatment is concerned, if there is no salivary calculus, a good deal of wholesome neglect is advisable. There is nothing the matter, in this stage, with either the root or the alveoli.

I might repeat everything that has been suggested in the way of treatment where the disease has all the pathognomonic characteristics; but, to be as brief as possible, let me suggest a few aphorisms. Keep the mouth and your hands and whatever you use perfectly aseptic. Whatever drugs you use be sure they are pure. You must needs work a good deal in the dark, but get all the light possible, both in diagnosis and in operating. A drug that is useful may be abused by over-use so as to become a positive irritant. Iodine and aconite in the incipient stage of inflammation will retard the circulation and stimulate lymphatic action, but used in excess, as it commonly is, it is a destructive poison. Alkalies in any form should not be used, either by the patient or the operator, because they precipitate the salts of common tartars. In secondary treatment, and in fact all through, be careful not to disturb granulations which you have been trying to produce. Do not operate oftener, as a risk, than three days of each week; some rest is as necessary as some operating.

Before beginning the removal of serumal calculus, be as sure as possible just where it lies. There may not be any. I have seen acid conditions, in pregnancy, &c., when salivary calculus for the time is dissolved and disappears. As to whether or not this occurs where the calculus is serumal, I do not know. Massage the gum with the finger to make it bleed, if it will; sometimes lance; sometimes use a leech. Relieve venous congestion as much as possible before scaling. There is an object in manipulating the gum margins so as not to wound them any more than they are already wounded. I begin my diagnosis for the nodules of calculus by explorers I have made for the purpose, using a diagram of the roots to mark the parts upon which it is deposited. My pocket-hoes and scrapers I have had made so as to adapt them as nearly as possible to the contour of the roots. Square hoes and scrapers are not the best. I have had these made in duplicate of platinum-iridium so as to use them when the sulphuric acid is injected into the pockets. Some authorities object to the use of chemical agents to dissolve the deposits, and favour trichloracetic acid to soften them. I venture to believe what is considered an objection, viz., that they may cause a slight dissolution of the surrounding bone, to be advantageous, within proper limitations. Pure sulphuric acid is less destructive than dilute. Dip a wooden point in pure concentrated sulphuric acid; fill the pockets. You can see the advantage here of having the concave platinum-iridium instrument. Aromatic sulphuric acid dissolves dead, not live bone, but I believe we overlook the condition of the contiguous alveolar wall, which I always scrape more or less. The dental engine, to my mind, is risky, unless to curette the alevolar border where it is necrosed. If it is necrosed, the surgeon's maxim should be remembered—"cut beyond the dead line." I have had some opportunities to examine the alveolus and teeth *post mortem*, and hope to report later. If anyone else has had a like opportunity, I hope they will report before I do. I think the condition of the porous alveolar wall in pyorrhœa alveolaris has been somewhat overlooked. The nodules on the root may be removed, but their effect on the pericementum alveolus is serious.

For many years the use of sulphate of copper, packed into the pockets twice a week, and allowed to remain for ten minutes each time, has been in favour in England. I swear by it. It contracts spongy gums and makes scaling easier. Its action involves less loss of tissue, while its curative powers are very marked. It does not blacken the teeth like nitrate of silver, or act on them like acids; it does not spread over more surface than desired, like chloride of zinc, caustic, potash, and other such remedies. It causes little pain. Other caustics check granulation. Use bicarbonate of soda as a rinse, and pack it on top of the sulphate before rinsing. Protect the lips with an old napkin.

I have purposely avoided saying a great deal that might, and perhaps ought to be said, about peroxide of hydrogen, &c., and as I wish to leave room for somebody else to say something, I will say no more.—*Dominion Dental Journal.*

Removal of the Dental Pulp.[1]

By Dr. B. HOLLY SMITH.

"In proportion as medicine has grown scientific and skilful less dependance is placed on the therapeutic effects of drugs for the alleviation of human ills. Secondary effect has assumed greater importance, and possible evils attending administrations have outweighed the advantage of immediate relief.

"For more than half a century practitioners of dentistry have relied upon the application of arsenous acid to the dental pulp with a view to its destruction. Has any one found the exact limits of the destructive power of that agent? Has the use of this material been attended with no secondary evils? That pericemental disturbances do frequently occur can be stated without fear of dispute; that arsenic may be the cause has long been the thought of the writer, an opinion formed through observation of the contrast between teeth made pulpless through surgical procedure pure and simple and those from which the pulps have been removed after the application of arsenical preparations. The well-known germicidal qualities of arsenic would indicate that no trouble should be expected from the contents of the tubuli which have been subjected to arsenical application and sealed from the chance of subsequent infection; yet trouble not infrequently does arise in after years, even where there is reasonable certainty that the apex was entirely closed.

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[1] Abstract of paper read before the National Dental Association, Omaha, 1898.

"Why? Is it possible that a sleeping volcano has been located in the apical space by the application of arsenic? that the effect of the agent has not been limited to the confines of the pulp-canal and dentinal tubuli? that the area of tissue affected breaks down in seasons of depressed vitality, or becomes infected through the medium of the circulation? The apical opening may be infinitesimal, but it must be large in comparison with the tubuli in the dentine. Why may not the nerves and vessels in the apical space and a considerable area of the pericemental membrane have a share in the action of the arsenic? There is no positive evidence of a well-defined line of demarcation in the effect. Even after the agent passes the point where it has power to destroy, may it not deplete and incapacitate the tissues until danger is invited and may subsequently follow?"

Dr. Smith then quoted from Dr. J. Foster Flagg (1877) on the effects of arsenic taken into the circulation; from Arkövy, on the inflammation concomitant with the dying of the pulp; and from Dr. Burchard's recently published work, "Dental Pathology and Therapeutics," on the specific action of arsenic; from Dr. I. P. Wilson (1888), on its effects upon the cementum; and from Dr. Kirk (1898), on inflammatory action and bacterial invasion; thence deducing an explanation of the pathological expressions occurring in the apical space of teeth which have been treated with arsenic, drawing the conclusion that arsenic should no longer enjoy its universal popularity, but should give place to surgical procedure.

A change in this respect involves not so much the absence of other means as an aversion to change of practice, and the well-fixed habits of treating teeth without charge, giving two hours to filling a cavity with gold and five minutes to the destruction of a pulp. If, as we claim, we are dental surgeons—not mere cavity-stoppers—this is not right, and must be changed.

The conditions essential for pulp-removal by operative procedure were then considered, and the method of treatment outlined as follows:

"To the dental surgeon, as to the general surgeon, the necessity for operative procedure must be evident, and the field of operation be in as favourable condition as can be obtained. No effort should be made to remove a pulp in a high state of inflammation; employ antiphlogistic agents until irritation has subsided.

"Flood the cavity with a tepid solution of bicarbonate of soda. Then close the cavity with a pledget of cotton saturated in cocaine hydrochlorate for a few moments, avoiding pressure, and taking great care not to cause pain. Adjust a concave disc of vacuum-cavity material so that its edges will impinge upon the walls of the cavity and prevent pressure. Under this disc place a pledget of cotton saturated with oil of cloves. Cover with temporary stopping, paint the gum with aconite and iodine, equal parts, and dismiss patient until one or, preferably, two hours can be given to the operation of removal, when, if conditions are favourable, the pulp may be cocainised with the electric current and removed, using a minimum amount of current and a saturated solution of cocaine.

"If cataphoresis is not successful in the highest sense, supplant by a general anæsthetic, preferably nitrous oxide.

"When teeth containing living pulps are to be excised or ground down, advantage can be taken of the opportunity to remove the pulp under the influence of the shock of excision, which can be done with no pain. Cut the enamel with the disc or bur, leaving for the forceps only so much as will not require stress or violence. Having ready in the engine a cone-shaped bur, clean and sharp broach, &c., remove the pulp immediately by passing the broach quickly to the apex, twisting the pulp out *in toto*.

"The most inviting field for the surgical operation is found in single-root teeth, but it can be employed in the molars if the effort is painstaking. Surgery is not only more scientific, but is also proved to be more successful. A plea for this change in method should therefore not pass unheeded."—*International Dental Journal.*

Dentists' Fees.

A DENTIST in practice in the provinces has again put to us the question, often raised in our columns, as to whether it is proper for dentists to charge medical men, and members of their families dependent upon them, fees for services rendered in the treatment of disorders of the teeth. We have made some further inquiries as to the custom upon this point, and a dentist of large experience, whom we have consulted, states that there cannot be said to be any accepted rule with regard to fees between medical men and dentists. He adds that some leading consultants have been in the habit of freely accepting fees from dentists even when the latter have possessed full medical qualifications, whilst others with absolute firmness refuse to do so. Leaving personal friendship out of the question, the custom of waiving fees doubtless has its origin in a notion of reciprocity, and where this in any form exists the dentist doubtless does well to attend both the medical practitioner, and those for whom he would in reality be paying, without fee; but there is no obligation that he should do so, and it must be remembered that the consumption of time in dental operations is very heavy, so that to any dentist in busy practice to see one patient involves the refusal of another; hence the dentist cannot reasonably be expected to see without fee the families of medical men who are perfect strangers to him. A short time since a curious result ensued from this waiver of fees. A dentist, himself medically qualified, had been in the habit for years of attending a medical friend, and of accepting from him in return medical attendance upon himself and his family. There had been no thought of payment on either side, but both being of business habits noted in their day books all attendances. The medical practitioner died, whereupon his executors sent in a claim for attendances, and intimated that they should enforce it by legal measures if need be. The dentist thereupon sent to them a counter-claim, which happened to amount to a good deal more, and this the executors declined to pay unless compelled. The result was that both claims were dropped; but the legal point was brought out that any medical man can claim fees from any other, and that any waiving of fees is merely a piece of good fellowship, not binding upon executors or trustees in bankruptcy. It is therefore a matter upon which each must judge for himself. A great deal of gratuitous work is done by dentists for medical men and their families, and *vice versâ;* on the other hand, there are many medical men who will not accept it without making some return, and many dentists who, whether medically qualified or not, insist upon paying fees for medical attendance for themselves or their families.—*British Medical Journal.*

Editorials.

Fees Between Practitioners.

THE question of the propriety of fees being charged by one class of medical man to another has been discussed in the pages of this Journal and elsewhere more than once. It has, however, been revived quite recently with added interest, by an able and impartial article in a medical contemporary, which we reproduce at p. 90, and by a very curious legal illustration.

To dental surgeons the chief interest of the question has lain in the relations as regards fees between dental surgeons and the rest of the medical world. On the one side it has been contended with justice that the nature of the service rendered by a dental surgeon involves almost always a large expenditure of time, and not infrequently a considerable outlay of actual money, and this fact makes it more difficult for a medical man to accept such services as a gift. Again, it has often been urged that underneath this custom of reciprocal immunity from fees lies the suggestion of a *quid pro quo*, a sort of implied intention to send patients as a return courtesy, but after all this can only have but a limited application. On the other side it has been said that if dental surgeons treat, and are treated by, medical men in a different manner from other members of the medical world, they encourage the idea that they are something apart, an anomalous body neither quite inside nor entirely outside the pale, an idea which has taken a quarter of a century of unremitting labour to uproot, and which no one with any love for his profession would wish to revive. Perhaps the outcome of the present discussion may be the adoption of some system of a half fee being charged in all cases: we think ninety-nine medical men out of a hundred would prefer such a system.

The legal illustration of this question alluded to above is briefly as follows:—A general practitioner and a dental surgeon are great friends and attend each other and each other's families for many years without any intention of ever charging any fees. Both, however, are men of strict business habits, and enter each item in their respective ledgers just as though it were the case of an ordinary patient. The medical man dies and his executors proceed to collect the debt, which the dental surgeon, in self-defence, meets by a counter-claim against the estate ; eventually both claims are allowed to drop, and as both are about equal the same result is attained as though no fees had been charged. But surely there is a moral to this story, namely, that a definite understanding of half fees or reduced fees would be better than the present vague condition of affairs. The dentist in the above case would have been in an awkward predicament if he had not ledgered his friend's visits. Everyone must recall innumerable instances of the honourable desire on the part of most fellow practitioners, specialists or otherwise, to escape from the immunity from fees to which custom seems to entitle them ; handsome presents often form the salve to the patient's conscience, in fact, there is a general and very laudable feeling on both sides that the obligation involved is too great to be honourably incurred save in those cases where personal friendship renders obligation impossible.

The Paris Exhibition of 1900 and a Dental Congress.

As might have been expected, the activity attendant on the preparations for the International Exhibition in Paris of 1900 is extending itself to the dental profession. On another page we publish an account of a meeting held in the premises of the "Ecole Dentaire de Paris" so far back as June 26 last, which had for its object the organisation of an International Dental Congress, to take place during the Exhibition. Many dentists will be glad of the opportunity of combining the pleasures of a trip to the gay city with what they may consider the promotion of the interests of their profession. Men like to think they have a mission, and when the possibility of fulfilling that mission arises in conjunction with the promise of amusement and festivity, its importance is greatly enhanced; thus no doubt the announcement of a gathering of this nature will bring representatives of the dental world from many parts of the globe to avail themselves of the welcome extended to them by our friends across the Channel.

Paris, of all cities in the world, holds out exceptional attractions to the visitor from other countries; those among us who are fortunate enough to indulge in the luxury of a summer holiday of several weeks' duration usually find that family ties or the calls of friendship lead us to seek our recreation in "the happy homes of England," or, at any rate, of Great Britain and Ireland, and there are comparatively few who can manage to include a continental trip among the delights of the annual vacation. *Paris*, *The International Exhibition*, *International Dental Congress* and *The Twentieth Century* seem to make a very attractive combination, and one which holds forth a most alluring prospect of profitable enjoyment; but of course, as far as the carrying-out of the scheme is concerned, we know no more than our readers—in fact, the only knowledge we have we publish on page 106. No doubt, as we are promised instalments of details each month, we shall all learn more as time goes on.

The Annual General Meeting.

THE Annual General Meeting of the Association will be held in the Town Hall of Ipswich, on Saturday, May 20, Whit-Monday, May 22, and Tuesday, 23rd, next.

Members willing to read papers or give demonstrations at the meeting are requested to kindly send their names to W. B. Paterson, Hon. Secretary, 40, Leicester Square, W.C.

Correspondence.

We do not hold ourselves responsible for the views expressed by our correspondents.

Re The So-Called Card Advertisement.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—The Dean in his second letter uses metaphor which I think has been wrongly applied. I take it that the bulk of the advertisers are not members of the British Dental Association, therefore if the "beam" were cast out by the Medical Council, the mote complained of would, as a sequence, cease to be; or again, if the Medical Council would set the basement and main structure in order, then the spots on the smaller portion of the house (represented by the Association) would disappear at the same time.

I am quite certain the Dean would not advise any student to attend to some comparatively unimportant symptom (except as an aid to diagnosis) and neglect the disease, but rather he would say, cure the disease and the symptoms will disappear. Therefore, as a member of the Association, I think it would be better for us not to bother with one symptom, but rather let the Medical Council do the something drastic hinted at in the Dean's first letter, and so get rid of the root of the disease, if that is possible.

Yours truly,

January 19, 1899. A. VICKERY, L.S.D.I.

Brittle Platinum Pins in Porcelain Teeth.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—I will feel very much obliged if members of the British Dental Association, and any other dentists who may be interested in this matter, will send me further examples of brittle platinum pins found in porcelain teeth, whether used for plate or vulcanite work.

The amount of platinum I have been able, so far, to place in Professor Hartley's hands, is very small; but nevertheless the accuracy of his conclusions will not be disputed. The investigation has been a searching one, and quite new to science. It is only by such a minute physical examination of the faulty platinum that any accurate determination could be arrived at.

A chemical investigation or assay would have left the matter as it was.

Professor Hartley informs me that workroom experiments in soldering, &c., will not prove the least value, as the defect is in the platinum pins, *before* they can be used in dentistry.

I remain,
Yours faithfully,
W. BOOTH PEARSALL, F.R.C.S.

13, *Upper Merrion Street,*
Dublin.

The International Dental Congress in Paris in 1900.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—May I venture to ask through your columns, if any organisation of British Dentists is contemplated, with respect to the International Dental Congress that is to be held in Paris in 1900?

It is to be hoped that we will be able to send representative men to this assembly of the profession, so that the feelings of our brethren in France will not be hurt from neglect on our part, to attend and take part in the proceedings. On the other hand, we ought also ensure that our representatives shall receive every official courtesy.

The utter mismanagement of the invitation accorded by the World's Columbian Dental Congress to the Members of the British Dental Association in 1893, at our Meeting in Birmingham, should not be forgotten.

In my opinion, it is desirable that dentists who have taken practical interest in the scientific progress and education of the dental profession, should have an opportunity of meeting other dentists who are animated by the same spirit.

Will the British Dental Association move in the matter? Already our American brethren have been at work since September last, perfecting their arrangements, to take part in this great gathering of dentists.

I am,
Yours faithfully,
W. BOOTH PEARSALL, F.R.C.S.

13, *Upper Merrion Street,*
Dublin.

Association Intelligence.

The Honorary Secretary of the Association desires to emphasise the statement he has on several occasions previously made, viz., that anonymous communications relating to cases of irregular practices, or alleged infringements of the Dentists Act, cannot receive from him that attention he would wish to bestow upon them, or they may deserve.

Midland Counties Branch.

LEEDS AND DISTRICT SECTION.

THE Third General Meeting of this Society was held at the Leeds Medical School on January 17, 1899. There were twenty-one members present, and the PRESIDENT (Mr. Gaddes) occupied the chair. The minutes of the previous meeting having been read, the Secretary read letters from Mr. G. Brunton and Mr. C. Birch regretting their inability to be present.

The Casual Communications were then taken, and Mr. W. R. BIRKETT was called upon for his case of "Unilateral Facial Paralysis." He said :—

MR. PRESIDENT AND GENTLEMEN, — In bringing forward the casual communication promised, I do so with some little hesitancy, as I am afraid I may be classed as one to whom our President's remarks, made at our last meeting, specially apply, as I find that I have been so very neglectful in the minute details. The case I bring forward is one of unilateral facial paralysis, following on the removal of a nerve from a lower wisdom tooth, the nerve having previously been destroyed by arsenical paste. The patient, a gentleman aged about 35, consulted me, and had several teeth filled, and amongst others I decided to treat and preserve a left lower wisdom tooth, as it had a very good antagonist, and was the only lower molar remaining on that side. On examination I found the tooth somewhat decayed, and it had an exposed pulp, which, being somewhat constricted, had become polypied. On Sept. 8 I applied the usual quantity of Baldock's paste on a small pledget of cotton wool, and sealed the cavity with cotton wool soaked in hard mastic. This caused little or no pain, and was removed two or three days afterwards, and a pledget of wool soaked in carbolic was then inserted, and the remainder of the tooth sealed with temporary gutta percha. This remained in the tooth until September 17, when the nerves were removed, causing scarcely any pain, and the roots were then filled with gutta percha points dipped in iod. and eucalyp., after which the tooth was filled with amalgam. Examined on Sept. 20, found tenderness in tooth with slight aching, excessive pain behind ear, over and underneath the eye, followed about two days after by symptoms of unilateral facial paralysis. On September 24, the filling and root fillings were removed, not on account of any pain in tooth, but in the hope of relieving the trouble, which was now very marked, the eyelids being quite immovable, as were most of the muscles on the left side of the face. The case then left my care and was treated by a distinguished medical man, who prescribed massage and application of electric battery. The muscles gradually recovered their use, after six or eight months. This occurrence was of such a grave nature to me that I bring it before you as a matter of interest occurring in private practice.

The medical opinion, according to the patient, was not absolutely in my favour, which naturally gave me a little cause for anxiety. There were no symptoms of sensory paralysis in the least. In conclusion, I must add one important factor to this case, namely, that the patient either the same or the next night after the nerve was removed admitted feeling a draught whilst in bed, caused by the windows being slightly open, which may in reality have been the exciting cause for the subsequent paralysis, and the removal of the nerve and filling of the tooth a mere coincidence.

It was requested that this case should be reported and put on record in our Journal.

The remark was made that the fact of the tooth being present was of importance, as if the tooth had been extracted, and similar results had followed the severance of the nerve, an action at law would have placed the dentist in an unenviable position.

Mr. COCKER then showed a bur holder made of Devonshire sparr, shaped like a small globular match stand.

Mr. NAYLOR described a case of hæmorrhage after the extraction of a tooth, in which he resorted to a plan previously found useful, consisting of a collar fitted to an adjoining tooth, and having a piece of gold plate so soldered to it as to extend over the socket and hold in the plug.

The subject for discussion, "Vulcanite Work," was then introduced by Mr. T. HEADRIDGE. He commenced with an inquiry into the constituents and methods of the manufacture of rubber, and explained that whilst higher percentages of admixture of sulphur expedited the process of vulcanising, it tended in increasing ratio to produce porosity, as in such compounds the excess of sulphuretted hydrogen could only be eliminated by very slow and prolonged vulcanisation. It was also explained that a smooth cutting and elastic rubber could only be obtained with the smallest workable percentage of solvents and pigments.

Methods of testing samples of rubber for constituents were suggested. For experiment, samples of equal bulk commencing with pure caoutchouc were submitted to heat in French crucibles, and the residual ash weighed and compared.

The importance was then considered of the careful mixing of plaster, as without solid and dense models good vulcanite work could not be expected.

A specially designed dredger was shown, that showered the plaster into the water, thus eliminating the pent-up air in bulk of the material, and preventing the formation of nodules of unmixed plaster.

Models were shown of methods of mounting and shaping teeth to represent the appearance found in the mouths of aged patients, with special application to full dentures.

Considerable importance was attached to the edge-to-edge bite, and the partial grinding away of cusps, in order to facilitate, as far as possible, the rotary motion in mastication. It was suggested that the aim of the practitioner should be rather the imitation of decaying nature than classical types.

The different methods of modelling dentures was next considered. For deep-vaulted upper dentures and thin alveolar ridge lowers type metal dies for vulcanising on were recommended, these being coated with a thin film of collodion or soap to prevent adhesion of the rubber. A specially designed two-part moulding box was shown for the casting of type metal dies. Methods of modelling cases in rubber direct and in cloro-rubber were explained, also in one or other of the modelling compositions in combination with the above.

The theory of the strain on plates and the preventing of breakages was next dealt with. An expeditious system of strengthening with hard drawn nickel alloy wire, twisted rope fashion into two or three strands and bent into loops of various shapes—these to be tucked into the rubber when packing and kept completely out of sight in the finished denture.

The flasking or forming the mould was explained, and the waste wax method was advocated—that is, melting the wax clean away as a waste product with common washing soda and boiling water poured from the nozzle of a kettle held at some height. A set of specially designed flasks was shown with an inner rim device, designed to prevent the displacements of the plaster during dry heating.

The foregoing considerations were strongly recommended as means of preventing the rubber creeping away from the teeth.

The packing, vulcanising and finishing were briefly referred to; also methods of constructing artificial vela in hard and soft rubber, and models of cases treated were shown.

As the time for concluding the meeting had arrived when Mr. Headridge finished his paper, it was decided to postpone the discussion until the next meeting, which takes place on March 21, 1899.

Midland Counties Branch.

A MEETING will be held at the County and Lane Ends Hotel, Church Street, Blackpool, on Saturday, February 25, 1899, at six o'clock.

PROGRAMME.

A paper will be read by Mr. W. J. Pidgeon, L.D.S.Eng., on "Work and Play."

Casual Communications and demonstrations by Mr. I. Renshaw, L.D.S.I., on Making Solid Metal Dentures with Weston's Metal: Mr. Geo. Brunton, "Habit"—a factor to be considered in the treatment of regulation cases; Mr. Thos. Gaddes, M.D.U.S.A., L.D.S.Eng. and Edin., The Application of Wood Screws to Regulation Plates; Mr. W. E. Harding, L.D.S.Eng., and Mr. David Headridge L.D.S.Eng., "The Title Dentist."

A substantial tea will be provided at the hotel at five o'clock (2s. 6d. each). Week-end terms for Members staying at the hotel over Sunday, 18s.

The Railway Companies issue cheap week-end tickets for Blackpool.

Western Counties Branch.

A SPECIAL Meeting of the Council and members was held at the Royal Hotel, College Green, Bristol, on Saturday, January 21, at 3 p.m., the President, Mr. W. A. Hunt, in the chair. Also present were Messrs. H. B. Mason, Helyar, Laws, C. A. Hayman, Sanders, Brown, Apperly, Dudley, Genge, S. J. Hayman, Hatton and Goard.

Letters of regret at inability to be present were received from Messrs. Browne-Mason, E. Goodman, Yates, Kendrick and Gill Williams.

The requisition calling the meeting was read by the Secretary.

The following resolution was passed: "That we, as a Council, shall recommend to the Annual Meeting that a general meeting of members shall be held on the last Saturday in January or the first in February of each year in some large centre within the area of the Branch, to be decided upon at the preceding annual meeting."

The following motion was also carried: "That our deep regret at the loss sustained by the Council of the Western Branch of the British Dental Association in the death of Mr. McAdam be recorded, and that a letter expressing the same be sent to his widow."

At the informal meeting held afterwards, Mr. Henry Mason showed models and appliances used in a case of anterior protrusion. Mr. E. Brown showed a model of the transposition of a left upper canine behind the first bicuspid. Mr. Sanders showed a series of files, enamel chisels and scalers, all of various sizes and shapes, and likely to prove most useful in the more difficult cases dentists meet with.

Southern Counties Branch.

THIS Branch held their usual Demonstration Meeting at the East Sussex Hospital, Hastings, on Saturday, January 28. Amongst those present were Messrs. J. C. Foran, J.P., President; John Wood, President-elect; J. H. Redman (Hon. Treas.); J. H. Whatford, W. Barton and H. A. Turner (Eastbourne); D. W. Amoore, M. de C. Dickinson, George Henry, A. R. Henry, B. F. Henry, J. F. Sheppard (Hastings); F. H. Ellwood (Redhill); J. H. Reinhardt (Brixton); G. O. Richards (Richmond); H. J. Kluht (London); F. Bell, W. B. Bacon, L. Maxwell, W. T. Trollope (Tunbridge Wells); A. L. Goadby and Vernon Knowles (Reading); T. A. Tait (Tenterden); P. W. Greetham (Penge); C. S. Reed (Broadstairs); J. H. Turner (Folkestone); A. E. Anderson (Maidstone); A. King (Guildford); F. J. Dumayne (Lee); J. S. Stocken (Hastings); D. E. Caush, W. Harrison, E. L. Norris, J. F. Rymer, W. R. Wood, F. V. Richardson (Brighton), and others.

Mr. C. S. REED showed a method of clearing out and sterilising root canals, using a solution of permanganate of potash.

Mr. VERNON KNOWLES showed the advantages of using his "Composition Swaging Flask."

Mr. ANDERSON gave a practical demonstration showing the Working of Cast Metal (Watts).

Mr. TAIT showed the ease with which metal plates could be swaged using Ash's swaging press.

The dinner was held at the Queen's Hotel, when £3 7s. 6d. was collected for the Benevolent Fund.

The next meeting will be held at Tunbridge Wells in April.

Central Counties Branch.

THE next meeting will be held at the Medical Institute, Edmund Street, Birmingham, on Thursday, February 16, at 6.30 p.m.

A paper will be read by Mr. Malcolm Knott, on "The Present Day Conditions of Dental Pupilage."

The Council will meet at 6 p.m.

The Hon. Sec. will be glad to hear from gentlemen who have any interesting casual communication to bring forward.

83, *Edmund Street*,
Birmingham.

A. T. HILDER,
Hon. Sec.

Reports of Societies and other Meetings.

The Odontological Society of Great Britain.

THE ordinary monthly meeting was held on February 6, Mr. A. J. FAIRBANK, President, in the chair.

The SECRETARY read the minutes of the last meeting, which were confirmed.

The following gentlemen were proposed for election into the Society:—Sidney Herbert Williams, L.D.S.Eng. (Johannesburg), for non-resident membership; and Clarence H. Keel, L.D.S.Eng. (Bayswater), for resident membership.

The following gentlemen were balloted for and duly elected:—Mr. James Mountford, L.D.S.Eng. (Dublin), non-resident member; Mr. T. Harris, L.D.S.Eng. (Harley Street); Mr. Murray Thompson, L.D.S.Eng. (Harley Street); and Mr. Edwin William Harwood, L.D.S.Eng. (Sloane Street), resident membership.

The CURATOR (Mr. Storer Bennett) said he had one specimen to present to the Society which had been handed to him by Mr. West. It was a remarkable specimen of an upper and lower entire set of little plates with the teeth soldered on, and with springs, but the remarkable part of it was that the swivels were attached by being inserted into the first molars. He used the expression "being inserted" because it was rather difficult to know quite how they were attached to those teeth, whether holes had been drilled into the teeth and the pins passed through them, or whether the teeth were originally formed with the holes for the reception of the swivels. He was informed that the plates were made a good many years ago, but the date of them was quite problematical, and he should imagine, from the appearance, that they were made before the time that the burring engine was in use. It was therefore very difficult to understand how such a hard substance as those teeth evidently were could have been drilled by any kind of drill worked by the hand alone. Of course it would be easy enough for a diamond drill such as was in use at the present moment, and an electric motor, or even the ordinary burring engine, to drill through such teeth if the operator possessed sufficient patience, but how they could ever have been drilled by a hand instrument only it was difficult to understand. He had certainly never seen any teeth made for the purpose of receiving bolts of swivels in that way, and had never seen any plates with the swivels attached in the same manner.

The PRESIDENT considered it was quite possible the teeth were made with pins in them, and he thought it likely that the swivels were made in the same way.

Mr. COXON thought he could find two tube teeth amongst his odds and ends with the swivels inserted in them in a similar manner. He thought that the teeth had been drilled through after they had been fixed.

Mr. **REINHARDT** said it might possibly be that the hole in the tooth was drilled afterwards by the man who cut the set of teeth. Many years ago, before the engine came into use, it was not an uncommon thing for a man to have to drill holes in centrals and laterals and put in gold filling. It was very slow work, but it was done by means of a steel drill tempered very hard indeed, and turpentine was used.

CASUAL COMMUNICATION.

Mr. **MATHESON** read a short communication on Obtundents, in which he referred to the use of nitrate of silver in various forms. He especially, however, dealt with the substance known as milk of magnesia, which had been brought before his notice in an article in the *Dental Cosmos* a year or two ago. It was of very great service, he said, in those cases of very sensitive dentine either due to erosion, or decay, or abrasion, or simply to the shrinking away of the gums from the neck of the teeth. He had used it in a number of cases, and whilst it was very difficult to prove that any substance did check erosion or decay, his strong impression was that the continual use of milk of magnesia did both. He was prepared very distinctly to say that milk of magnesia did very markedly lessen the very troublesome sensitiveness often found in cases of erosion and in cases of general sensitiveness of dentine in those mouths where a large amount of ropy mucus and a great deal of chalky caries was found. It was also advantageous for use in the wearing part of dentures where one found a great deal of sensitiveness at the neck of the teeth. He was gradually discarding the use of eau-de-cologne or weak spirits of wine in favour of milk of magnesia, which seemed to have the same effect as spirits in checking sensitiveness, and checking decay without the staining, which was a point distinctly in its favour. The preparation was made by the Phillips Chemical Company, of New York, and could be obtained from any good chemist. It was obtained in a liquid form. The hydrate was in suspension in water, and separated to a certain extent sometimes from the water, but if shaken up it mingled again. It was very much like milk. The way of applying it was by taking a teaspoonful or so in the mouth, holding it there, and drawing it in and out between the teeth.

The **PRESIDENT** considered that the speediest and most certain of obtundents for cavities was the hot-air syringe. It was rather painful, but he had never known it fail to remove the sensitiveness of over-sensitive dentine.

Mr. **WILLIAM HUNTER** mentioned the excellent effects obtained by the use of sulphate of copper. It stained, but nothing like so much as nitrate of silver, and its action was very much like that of nitrate of silver, although not quite so powerful, and for cases of fractured teeth and accident cases it was very beneficial.

Mr. **DOLAMORE** said he understood Mr. Matheson to say that the milk of magnesia had been found to check the progress of erosion cavities. He should like to ask whether he had any data to give on that point, because personally he had always doubted whether there was such a thing as erosion apart from attrition. Of course milk of magnesia could not stop the progress of cavities due to attrition, and if it stopped the progress of erosion cavities, it would be an argument in favour of the disease producing erosion apart from attrition.

Mr. H. **Lloyd Williams** mentioned that by simply rubbing a small pledget of cotton wool dipped in carbolic acid on a stick of nitrate of silver a syrupy solution was obtained which he had always found very efficacious. He asked Mr. Matheson what his theory was as to how an alkali could act as an obtundent. He should like to know if magnesia had any specific action as an obtundent to the dentinal fibrils, and whether Mr. Matheson had ever tried any other alkaline solution or alkali.

Mr. **Matheson**, in reply, said that he had not made any use, certainly not much use, of other alkalies or alkaline washes, because he had always felt that their effects were so fugitive. What attracted him about milk of magnesia was the film on the teeth, which, if there, must have a more considerable effect than any wash apnlied at the moment. With regard to any theory as to alkali being an obtundent, he had not formed any such theory, and he also thought that an ounce of practice was worth a pound of theory. It was in practice that he had found it so useful. He was quite willing to admit that the term "obtundents" was perhaps not properly applicable. Certainly he had not used it as some had used it that evening, as meaning that it was an obtundent which would reduce sensitivity of dentine so much as to take away sensitivity. He had used it for the reduction of the sensitiveness which a patient felt without operation—sensitiveness to hot and cold and sweet and salt substances—a condition which was always very difficult to deal with. He should expect the dentine to be less sensitive to the excavator after the use of the milk of magnesia for some weeks, but he certainly should not expect it to be obtunded as dentine was obtunded by the use of nitrate of silver. He was much obliged to Mr. Hunter for bringing sulphate of copper to his notice, as he was unaware that it did act as an obtundent on sensitive dentine in that way, and he should be very glad to try it. With regard to Mr. Dolamore, he (Mr. Matheson) had tried carefully to say that he was not prepared to prove that milk of magnesia did check erosion. He only said that he thought it did. It was very difficult to prove any actual checking of erosion without the most careful and minute measurement. That he was not prepared absolutely to say that it did, nor had he taken any means of measuring the erosion cavities as he might have done. With reference to Mr. Dolamore's belief that erosion was only caused by attrition, only two days previously he had removed a left upper third molar in which there was considerable erosion of the labial and disto-labial cervical margin. The erosion was remarkable for having a very high polish, such as one saw sometimes, but which he thought he had never seen in such a position. But high polish or no high polish, it was very difficult to see how it would be possible in such a position to have erosion caused by attrition.

Mr. **Theodore Harris** exhibited a model showing suppression of most of the permanent teeth, taken from a patient aged 23, of medium build and height, and well nourished. The patient had been wearing a denture in the lower jaw for some years. The permanent teeth in the upper jaw were the two upper central incisors, one lateral incisor, and two first molars. The anterior of the two teeth in the right maxilla was a temporary tooth. In the lower jaw there were only three permanent teeth, one central incisor and two teeth occupying the place of the lateral incisors, which he took to be canines from their shape and size.

The **President** said it was a very interesting question in cases of suppression of teeth whether the character of the patient was like the jaw.

Mr. COXON explained, with reference to the models shown by him at the last meeting, that Mr. Matheson was quite correct in the conjecture he came to. They were not laterals, but were undoubtedly supernumerary teeth, a little larger than usual.

The paper of the evening was by Dr. WILLIAM HUNTER, on "Dental Diseases in Relation to General Diseases." The hour being late, the discussion was adjourned to a future meeting to be agreed between the Secretary and Dr. Hunter.

The PRESIDENT having thanked the members who had contributed casual communications, and Dr. Hunter for his most interesting paper, adjourned the meeting till Monday, March 6.

Reviews and Notices of Books.

ORAL PATHOLOGY AND PRACTICE: A TEXT-BOOK FOR THE USE OF STUDENTS IN DENTAL COLLEGES, AND A HAND-BOOK FOR DENTAL PRACTITIONERS.

By W. C. BARRETT, M.D., D.D.S., M.D.S., Professor of Oral Pathology in the University of Buffalo Med. Dept., Professor of Dental Anatomy and Pathology, Chicago Coll. Dent. Surg., &c., &c. Philadelphia: the S. S. White Dental Manufacturing Co., 1898.

DR. BARRETT is one of those who believe in as wide an education as possible for the dental practitioner, and, as he states in the preface, "the making of oral practice a true specialty of medicine."

The book before us has been written in a conscientious and truly catholic spirit, though perhaps this has been somewhat overdone in the chapters on physical diagnosis, where an attempt is made (in eight pages), to teach the interpretation of pulse-signs and auscultation and percussion of the chest. Though, no doubt, dental surgeons should be acquainted with the methods, we think it unsafe for anyone whose eye, ear, and touch are not in constant practice to attempt to draw inferences on these points.

The author wisely omits descriptions of surgical and operative procedures which can only be taught practically, and lays great stress upon general principles.

The chapters on bacteriology and fermentation are admirably clear and concise, as are those on inflammation, though we may be pardoned for preferring the now classical definition of the latter state given by Burdon Sanderson to the somewhat hypothetical one on p. 21.

Dental caries is efficiently dealt with in the light of accepted theory. The statement, however, that "enamel is bone deprived of lacunæ and canaliculi, *et seq.*," seems somewhat too figurative, and in view of the known facts of embryology hardly suitable to put before students.

The assertion that "both dentine and dentinal pulp are without ordinary sensation when in a perfectly healthy and normal condition" will come as a surprise to many of us, though Dr. Barrett makes out a good case for this view.

This book is well adapted to the purposes for which it is intended, and should be of service to students on both sides of the Atlantic in preparing for examination, for which purpose the typography is so laid out that important statements stand out from the page as "eye-catchers," while explanations, &c., are subordinated. The general excellence is such that one all the more regrets the disfigurement of the pages with such hybrid words as "pulpitis" and "cauterant," and the error on p. 142, where "having the appearance of a head" is given as an explanation of "encephaloid."

L'ART DENTAIRE EN MEDECINE LEGALE (Dental Art in Legal Medicine).

By Dr. OSCAR AMOËDO, Professeur à l'Ecole Odontotechnique de Paris. Paris: Masson et Cie.

IN this well printed, well illustrated and portly volume—608 pages—Dr. Amoëdo has enriched both medical and dental literature with the best results of elaborate research. Having consulted a large number of authors (the list of the names and works occupying 34 pages) he remarks that the important services a dentist may render in medical jurisprudence have been hitherto much neglected. The awful catastrophe of the burning of the Charity Bazaar in Paris, on May 4, 1897, furnished many striking instances of the valuable and indispensable aid of the expert dentist in the identification of remains rendered unrecognisable by fire.

This difficult enterprise contains much that is interesting and important for dentists, although designed principally for medical men, and must have entailed on its author much labour, on account of the scattered nature of the material which it has been necessary to collect and classify.

In devoting over 276 pages to the descriptive anatomy of the teeth, Dr. Amoëdo observes that the subject has been insufficiently described in text-books. The nomenclature of dental anatomy has also received great attention, due acknowledgment being accorded to Dr. Black's report at the Columbian Dental Congress (1893) held at Chicago, in which he states that in two years, 1891 to 1893, the number of those who wrote on dental subjects in journals, books, and reviews, were:—

In English:

America	1152
England	519
Canada	58

In German:	600
French	479
Italian	47

and that it was not easy to harmonise the views of so many writers.

An interesting chapter (vii.) treats of the difficulty of recognising the sex of the individual by the teeth. Several distinctive characteristics are noted by the authors who have applied themselves to this question, but unfortunately there exist many variations. The incisors, we are told, are "smaller and whiter in women." "But everyone must have observed the considerable size of the incisors of English women!" Fortunately for us Dr. Amoëdo concludes his paragraph with the remark that "if the generally admitted law is exact it permits such numerous exceptions that the expert would have many opportunities for error if he had only the indications furnished by the teeth."

On the subject of anæsthetics in general it would appear that the French law is clearer than ours on the question of responsibility of the administrator. At a meeting of the Society of Medical Jurisprudence (France), that learned body resolved " that if a medical man, without being assisted by a colleague, and without having examined the thoracic organs, should administer chloroform, even for a minor operation, he would be considered guilty of culpable negligence." If such severe strictures await the negligent medical man, what would be the fate of the dentist in like circumstances?

Dr. Brouardel, to whom this work is dedicated, is emphatic also in his advice to both classes of practitioners, doctors and dentists alike—never administer anæsthetics by yourself.

Dr. Amoëdo has treated the whole subject of the important place dental art must take in medical jurisprudence in an international spirit, and his valuable work should receive a warm welcome in consequence.

Death under Ether.

James William Oliver, a house-painter, aged 50, was being given ether, prior to undergoing an operation in Paddington Infirmary, on Monday last, when his breathing suddenly stopped, and though recourse was at once had to artificial respiration, he died from syncope while under the influence of the anæsthetic. At the inquest Dr. G. D. Thomas, the coroner, remarked that ether is considered the mildest of anæsthetics. One patient in 3,000 or 4,000 dies when subjected to anæsthetics. Mr. Sidney Vinos, the anæsthetist, said deceased was nervous, and did not take the ether well. The Coroner said he had not had a similar case from this infirmary before, and remarked that sometimes even the strongest men succumbed, while apparently weak people took ether or chlorofrom with impunity, some people habitually inhaling the latter. The verdict was death by misadventure.—*Daily Chronicle.*

Obituary.

Thomas Saunders Robertson, L.D.S.Edin.

THOMAS SAUNDERS ROBERTSON, L.D.S.Edin., died at his residence Cluny Gardens, Edinburgh, on Sunday, January 8. He was but a young member of our Association but one who gave great promise for the future, possessing as he did ability and strength of character, combined with a strong love for his profession and all its interests. He had gathered a large and increasing practice, and we regret exceedingly that he should have been cut off in his early manhood.

Andrew Wilson, L.D.S.Edin.

MR. ANDREW WILSON, L.D.S., died at his residence, 2, North Charlotte Street, Edinburgh, on January 15, in the 70th year of his age. He had been ailing for more than twelve months and had relinquished practice for that period, so that his death was not altogether unexpected.

Mr. Wilson held a prominent and well-defined position in the profession, and his loss is felt and regretted by a large circle of friends and fellow practitioners.

He was in practice for about fifty years, and received at the hands of the profession many well-earned honours, and would have enjoyed many more but for a native modesty which shrank from public life.

He took his recreation as a disciple of Isaak Walton, and was a keen and observant student in natural history. For nineteen years he was Lecturer in Dental Anatomy and Physiology in the Edinburgh Dental School, a post for which his early inclinations and life-long studies eminently fitted him, and for the illustration of which subject he had collected a large and valuable museum. He was one of the Examiners in Dental Surgery at the Royal College of Surgeons, Edinburgh. He held office in various of our Societies, having been Vice-President of the Odontological Society of Great Britain, President, &c., of the Odonto-Chirurgical Society of Scotland, Treasurer, &c., of the Scottish Branch of the British Dental Association, and was a Fellow of the Royal Physical Society of Scotland. His name is well known in connection with some important investigations with regard to missing human incisors.

In his engagements he was punctual; in his work thorough; trustworthy in his relations and of a sociable disposition. Clear in intellect till the time of his death, he enjoyed during his prolonged illness the pleasant intercourse of his intimate friends, cheered by many happy and humorous memories of a well spent life. He is survived by a widow and two daughters.

Miscellanea.

Benevolent Fund.

The following contributions have been received during January :—

New Subscriptions.

Anderson, W. D., 22, Sandyford Place, Glasgow	£1	1	0
Carter, J. H., 26, Park Square, Leeds	1	1	0
Carter, T. S. „ „ „	1	1	0
Hordern, J. B. „ „ „	1	1	0
Tasker, B. G., 7, Colebrooke Row, Islington	0	7	6
Patterson, J. M., Marsden Villa, 62, Haverstock Hill, N.W.	1	1	0
Hughes, Morgan, Eastbridge, Croydon (increased from £1 1s.)	2	2	0

Donations.

Barton, W., Sadowa House, Cornfield Road, Eastbourne	£2	2	0
Ash, William, Tower House, 119, Camden Road, N.W.	100	0	0

International Dental Congress of 1900.

Secretary's Office, Paris,
November 15, 1898.

Provisionary Organisation Committee.

In consequence of a Summons addressed to the body of the Ecole Odontotechnique by the Initiative Committee, appointed by the Ecole Dentaire of Paris, a meeting was held on June 26 last in the premises of the last-named institution.

This meeting comprised 34 members :—17 members representing the body of the Ecole Dentaire, of Paris (5 members taken from the Directing Council of the Institution and from the Dispensaire Dentaires of Paris; 4 members chosen from the Committee of the Société d'Odontologie of Paris; 8 provincial members delegated by the Directing Council of the Association Générale des Dentistes de France); 17 members representing the body of the Ecole Odontotechnique (5 members taken from the Directing Council of the Society of the Ecole Odontotechnique; 4 members chosen from the Committee of the Société Odontologique de France; 8 provincial members delegated by the Directing Council of the Association Odontotechnique).

An explanation of the object of the meeting, and a statement of the operations of the Initiative Committee having been made by M. Godon, the Assembly decided to nominate a Provisionary Organisation Committee, whose duties were thus defined :—

(1) To prepare a scheme of management.

(2) To make an appeal for co-operation to the French Societies, asking them to name one member, delegated by 20 active members or part of 20 members.

(3) To place themselves in communication with foreign professional Societies, to promote the formation of Organisation Committees in their respective countries.

(4) Finally to prepare the meeting of a General Assembly of Delegates—in March or July, 1899—for the appointment of a definitive Organisation Committee.

The Provisional Committee is actually composed of Messrs. Lecaudey (Honorary President); Ch. Godon (President); Dr. Guendot, Ducournan, Dr. Martin, of Lyons; Schwartz, of Nimes (Vice-Presidents); Viau (Treasurer); Dr. E. Sauvez (General Secretary); Messrs. Burt, D'Argent, Hivert, Dr. Maire, Martinier, Siffre (Secretaries); Rodolphe (Assistant Treasurer).

For all particulars concerning this Congress, please address Dr. E. Sauvez, 17, Rue St. Petersbourg, Paris.

Edinburgh Dental Hospital and School.

The seventh annual meeting of the Edinburgh Dental Hospital and School, Chambers Street, was held on Monday, January 23, Lord Provost Mitchell Thomson presiding.

The SECRETARY (Mr. G. M. Stuart) read the report of the directors for the past year. It stated that the number of cases of conservation dealt with in the hospital was 7,234, including 5,786 permanent stoppings and 1,190 temporary stoppings. The total shows an increase of 360 on the previous year's cases, and of 2,052 on the number for 1896. The extractions numbered 11,600 teeth, as compared with 11,075 in 1897. The number of persons taking anæsthetics was 959, of whom 293 were under chloroform, 620 under nitrous oxide gas, and 46 under nitrous oxide and ether. The number of students on the roll was 55, of whom 23 were in their first year. During the year three new apprentices were indentured, one of them being a lady student. There was, however, still a debt of £2,000 standing against the institution, and the directors appealed to the public and the profession for funds to enable them to clear it off soon. The balance of the Town Council grant had been more than expended, and as it would probably be necessary in the near future to spend a good deal in the equipment of a teaching museum and lecture-room, it is hoped that the Town Council would again favour the institution with a grant. The remaining debentures, amounting to £300, had been paid off out of the surplus revenue.

The LORD PROVOST, in moving the adoption of the report, said that during the last twenty-five or thirty years a great advance had been made in science in every direction. In medical science, especially, great strides had taken place, and in no branch of the medical profession had there been a greater advance than in regard to dentistry. He had a lively recollection of the first tooth he got extracted. There were no anæsthetics then, and the instrument used was something like a corkscrew. He was very glad to see the progress that had been made by the hospital during the year. They had been told, on the authority of a very eminent statesman lately deceased, that in order to have good health they must be careful that their food was properly masticated. He thought Mr. Gladstone said that every mouthful should have thirty-two bites. In order to do their food that justice they must have a good set of teeth. If they decayed and required to be removed, artificial ones could be supplied, but he thought those whose profession it was to deal with that branch of medical science would admit that it was better to preserve the old than to supply the new. It was gratifying to learn from the report that under the head of conservation the number of permanent stoppings had increased from 3,943 in 1896 and 5,308 in 1897, and 5,786 last year; while temporary stoppings and dental appliances had increased in proportion. He had been informed that in order to overtake the increasing work in connection with the hospital it was intended to take in another flat of the building, and, speaking as an individual member of the Town Council, he would have great pleasure in supporting the continuance of a grant to the hospital, believing, as he did, that they were doing a good work in connection with technical education. He congratulated them on the success of their work, and trusted the hospital and school would long remain as one of the permanent institutions of which Edinburgh had reason to be proud.

Bailie KINLOCH ANDERSON, in seconding the adoption of the report, said he would be glad to support the Lord Provost in his efforts to obtain a further grant from the funds of the Town Council.

The report was unanimously adopted.

The accounts for the year, submitted by the Hon. Treasurer, showed a surplus of income over expenditure of £500 odd, and that had been applied to the reduction of debt, which now stood at £1,925.

On the motion of Mr. D. F. LOWE, the retiring directors, Mr. GUY, Dr. SMITH, and Bailie KINLOCH ANDERSON were re-elected.

Death of an Amateur Dentist.

The death is announced as having occurred at Monkwearmouth of the Rev. Thomas Snell, in his 79th year. He was originally intended for the scholastic profession, and was a student in the British and Foreign School Society's College in London. Whilst there an outbreak of cholera occurred in the metropolis, and Mr. Snell was prominent among the volunteers who came forward to assist the doctors and nurses in fighting the epidemic. In 1843 he was induced to enter the regular ministry of the Congregational body and laboured as a pastor for some years at Berkhampstead, and afterwards at Sunderland. He was the uncle of the Rev. Bernard Snell, B.Sc., of Brixton Independent Church, and of the Rev. Herbert Snell. The deceased gentleman, who was widely known in the North of England, had a great reputation as an amateur dentist, and a carefully kept record shows that during the last quarter of a century he had gratuitously extracted 30,000 teeth.—*Daily Chronicle*, Feb. 3.

A Temporary Crown.

A writer in the *Ohio Dental Journal* describes the following method of making a temporary crown in a hurry. "Grind off crown of tooth to gum margin, a little below on labial aspect, just as for a Logan or Richmond. Select a plain vulcanite tooth approximately as to size and colour, grind so as to make a fair joint at contact with root. Put a German silver or copper bar in root canal, roughened on portion exposed from canal. Place some warm wax on the vulcanite tooth, and push to place. Remove all in one. Trim the wax as you desire the contour of the finished crown to be, being careful not to mar the part showing imprint of root. Now take the little cone-shaped piece of wood (well soaped) with the pin point protruding and stick it into the lingual surface of the wax. Then mix some quick-setting impression plaster in a tea-spoon, imbed the crown in same, building the plaster up around the inverted cone. Hold spoon over alcohol flame; plaster soon sets. Remove the cone and you have a funnel-like opening leading down to the wax, which can be poured out with hot water. Heat the spoon until the plaster becomes *hot* and *dry*, then pour in some Melotte's metal and immediately take a piece of wax and force the fusible metal down into the mould so that it will completely fill the space. Cool and finish with disc on engine. You now have a crown closely and perfectly adapted to the root, can be set with gutta-percha and will last till you have time to make one out of the more noble metals."

"English as she is Wrote."

Ours is a difficult language to the foreigner. A correspondent sends us some labels illustrating the snares and pitfalls which have to be encountered by the translator:—

FORMALDEHYDE-PASTE IN TUBES.

For Pulpatise without cauterizing the nerve. After determination, to devitalize the nerve, the amputation of the pulp can be performed the next day, and the pulp chamber filled with this paste. ("Oestereich-ung Vierteljahrsschrift" 98, I., Prof. Dr. Boennecken.) Without taken the slightest notice of the mummification of the nerve stump, at the same time, the filling can definitively be done.

DR. SCHEUER'S JODOFORM-ROOT-FILLING.

Is the most distinguished and commodious for use. After the root-channels been cleaned, it can be taken direct from the tube, and applied into the channels. Therefore it requires no rubbing it on a glassplate. It is time saving for the practitioner, and occures no loss of material.

CANTERIZED PASTE IN TUBES.

Dr. Scheur's preparates in tubes is preferable to any other kind; a slight touch of the tube, arises the paste, and taken on a flat button-instrument, conveyed to the exposed pulp, the cavity will then be closed with Mastic-wadding or Fletschers artif, Dentine.

USEFUL HINTS.

An American writer in *Items of Interest*, T. P. Hinman, D.D.S., Atlanta, Ga., gives the following among "Useful Hints in Operative Work":—

"A little soap on the dam about the holes will make it pass between crowded teeth with ease. Soap on the edge of a sandpaper or cuttlefish disc will prevent it from catching the dam.

"In the majority of cases it is not necessary to ligate dam in the anterior teeth, especially when the Perry separator is used. The pain of separation with the mechanical separator is not caused so much by the act of separation as by the laceration of the gum by the separator jaws passing too far up. This can be prevented by placing gutta-percha under the arms and allowing it to rest on the teeth.

"To make thin rim discs at a moment's notice, place a disc on the mandril in the handpiece and revolve it rapidly, at the same time holding an instrument against the part nearest the mandril and gradually passing it outward to about one-eighth of an inch of the edge. This wears off the grit on the central surface of the disc, but leaves fresh grit on the rim.

"A little wax on your engine belt will prevent it from slipping; a composition of beeswax and rosin is better.

"To devitalise painlessly with arsenic, place a small pledget of the devitalising agent on freshly exposed dentine as far from exposure as possible; then place on the exposed pulp a pledget of cotton saturated with equal parts of clove oil and carbolic acid. This should be dipped in a few crystals of cocaine just before passing into the cavity. Now seal lightly, and in 95 per cent. of cases thus treated the result will be good.

"Varnishing sensitive cavities with gum mastic dissolved in chloroform will prevent pain from thermal changes after the insertion of a metallic filling, provided the cavity does not extend too near the pulp; if so, varnish, line with cement, then place the metallic filling.

"To secure perfect dryness without the dam, have napkins eight inches square of shirt-bosom linen. Make rolls of cotton packed hard and place them over the saliva ducts. Now roll the napkin into a long rope and place around the tooth. While holding in position with the fingers place a dam clamp over the tooth, which will hold the napkin in position and leave both hands free to operate.

"Amalgam thoroughly triturated in a mortar works much easier and softer and fully repays the operator for time spent mixing; besides it makes a much more compact filling.

"Teague's asbestos and tin cavity discs are excellent for capping nearly exposed pulps. They can be held in place by a little chloroform varnish. Then cement is lightly flowed over them. Besides being an excellent non-conductor they prevent pressure.

"The pain of excavating hypersensitive teeth can be greatly reduced by placing a pellet of cotton saturated in pure carbolic acid, then dipped in crystals of cocaine hydrochlorate, in the cavity, and then blowing hot air on it for a few minutes. When the cotton is removed quite a layer of dentine will be found anæsthetised, and if the operation is repeated the tooth can be excavated without pain.

"A small eye tenotome lance is the best for an abscess.

"Try saturated solution of silver nitrate in children's teeth, and when the cavities are fully blackened fill with sheet gutta-percha, bridging over interproximal spaces.

"A good root-canal filling is made by dissolving sheet gutta-percha in chloroform and then adding iodoform about one-sixth of its entire bulk."

The Use and Abuse of de Trey Gold.

C. C. Taggart, D.D.S., in a paper contributed to the *Ohio Dental Journal* on the above subject, says:—

"One of the necessary requisites of a good filling is its retention in the cavity. We should not therefore be led from the proper preparation of a cavity by de Trey's advice to prepare as for an amalgam filling. Oh, that we had more men who would endeavour to lift up the careless and superficial dentist in his work instead of the many whose influence is downward. Prepare your cavities for a gold filling, gentlemen, and by so doing be assured you will lose none of the advantages of de Trey's gold; rather you will perform better service for your patient and preserve self-respect to a far greater degree.

"If anything should cause this new gold preparation to be looked upon with disfavour and thus it be brought into disuse, it will be the careless, defective insertion of fillings. One European dentist says:—'The exaggerated modern enthusiasm has placed it at the head of gold preparations for filling teeth, which accounts for the many more bad fillings of last year than in the five years previous.'

"The prevailing impression that it can be worked almost as readily as amalgam is the direct result of improperly shaped cavities, and hence an imperfect placing and adaptation of the filling. Whether cavities be large or small, simple or difficult in character, the same care in preparation must be observed."

The Phœnix Dental Manufacturing Company.

We are pleased to be able to call attention to the excellent mineral teeth which are now being manufactured by this Company. Subjected to the usual tests they appear to be quite equal to any on the market. Diatoric and pin-teeth alike are good in quality, shade, and pattern, and in every way quite as satisfactory as any produced. In these days of competition unless an article is up to the standard it will quickly cease to be recognised, and in mineral teeth especially there is a constant demand for variety in patterns and colours. The Phœnix Company are supplying first-class goods at very moderate prices, and they deserve the gratitude and custom of the dental profession accordingly.

Letters and Other Communications received from:—

A. Vickery; E. Duval; Masson et Cie; Dr. A. Scheuer; W. M. Gabriel; T. A. Reed & Co.

NOTE.—ANONYMOUS Letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 26, Wimpole Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

Subscriptions to the Benevolent Fund to the Treasurer, A. J. Woodhouse, Esq., 1, Hanover Square, W.

All contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 26, Wimpole Street, W.

Journal of the British Dental Association

No. 3. MARCH 15, 1899. VOL. XX.

Original Communications.

Presidential Address.[1]

BY C. WEST, L.D.S.ENG.

GENTLEMEN,—Standing before you as your President I keenly feel my inability to adequately fill the place of those eminent men who have preceded me in this chair. "What can the man do that cometh after the King?" is a question that has often recurred to my mind since you were good enough to make me President-elect. If it was difficult for the Preacher of old to determine his course of procedure in following the King, how much more difficult is it when the plural is substituted for the singular; for I seem at the present time to be in the unenviable position of following the kings of the dental profession. The names of Tomes, Mummery, Canton, Woodhouse, Walker and others, occur to my mind as past-presidents of the branch; men who by their fathers' and by their own personal ability have marched in the van of dental progress and reform; men whose force of intellect, strength of will and assiduous labour have raised dentistry to its present eminent position as a learned profession. Unfortunately we are not all thus gifted, we cannot all boast the possession of such constructive ability; as there are leaders there must also be followers, and I happen to be by nature and inclination one of the latter, but by your kind indulgence I find myself exalted, and for the space of one year placed in the position of a leader. Well, gentlemen, you have placed me here, and whatever may be my shortcomings I am sure you will regard them with a lenient eye, and credit me with doing my utmost to sustain the dignity of the position to which I find myself so unworthily raised; conscious of possessing so few of the necessary qualifications, I have wondered by what process of selection I find myself President of the Metropolitan Branch of the British Dental Association. I cannot claim profound scientific attainments, nor exalted social status—I am not even "a West-End Man." Truly many years have passed over my head, and I can without egotism claim to have conscientiously carried out my work to the extent of Nature's endowment. I have not had the inestimable advantage of hospital training, but obtained my L.D.S. from the College of Surgeons at the great rush of 1863, after seven years of hard work and persistent toil, oftentimes into the small hours of the morning; therefore the only ground upon which I can claim your support is that of being a representative of that large class of industrious practitioners who served their articles, mastered their profession, and by strenuously pursuing their calling are now occupying fairly successful positions in life. As one of such I crave your indulgence, and if I unwittingly give you occasion to regret your choice for 1899, I would remind you that, "To err, is human; to forgive, divine." The humanity being applicable to myself, the divinity is permissible to you, and I hope, therefore, that you will extend to me the indulgence of forgiving my presidential failings.

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[1] Delivered at the Annual General Meeting of the Metropolitan Branch, January 31, 1899.

Fortunately it is not the custom of the Branch to expect an inaugural address, but there are just one or two matters I should like to touch upon. A year or two ago I took it into my head to go through the Dentists' Register, to obtain some slight analysis of its contents, so far as London is concerned. The copy then available was for 1897, so that the figures I am about to quote are only approximate to the present numbers; however, they are near enough to enforce my contention that the Capital Branch should be considerably augmented. The total on that Register was 4,860: of these 1,100 were practising in London; 425 are L.D.S.'s of the various colleges; 6 are M.R.C.S.'s; 5 are D.D.S.'s; 664 are registered only. The 1898 list of the British Dental Association shows London members with a qualification, 234; without qualification, 28; total, 262; there are therefore 202 qualified London men who are not united to the Parent Association.

With regard to the Metropolitan Branch we have, according to the list quoted, 140 members with qualification and 16 without, a total of 156. A simple process of deduction shows there are 94 qualified, and 12 unqualified,[1] a total of 106 members of the Association who for some cause or another have not joined the

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[1] The Metropolitan Branch membership is now increased to 169.

Branch. Now, gentlemen, it should be our endeavour to get in touch with these members; they being already attached to the Association should therefore be affiliated to the branch of the district in which they practice; by securing their addition to our ranks we should strengthen our numerical position, should increase our funds, and help forward an aggressive movement to exorcise the advertising demon who has possession of the irregular practitioner. We have much to encourage us in this effort at extension from the fact that, during 1897, under the able presidency of Mr. Spokes, a special circular was issued, resulting in the branch membership being considerably increased. It should be the aim, not only of the new Council, but of every member, to repeat that effort during the present year—I trust with an equally satisfactory result. Furthermore, the Parent Association and the sister branches expect us to exercise an influence upon the 202 L.D.S.'s, and also upon the reputable registered men who still withhold their countenance and support from the Association.

The Metropolitan Branch yields to none in its devotion to the scientific aspect of our profession, but science is invulnerable, needing not our defence, and is ably expounded from time to time by the Odontological and kindred Societies; and while we welcome all scientific contributions bearing upon our speciality, it should be remembered that the purpose of the British Dental Association is primarily of a practical character, therefore incidents in practice, with papers and discussions of a clinical nature are always well received and fully appreciated. Furthermore, the British Dental Association is the only channel through which may be personally ventilated the many professional problems now ripe for elucidation in the domain of dental politics and ethics, such as the restrictions to be imposed upon those who evade the Dental Act; the question of how a young and newly-fledged practitioner should obtain his *clientèle* without infringing the acknowledged ethic upon advertising.

The question of fees would form a most useful subject for discussion. I fear, however, this is venturing upon dangerous ground, hence the subject has been tabooed, and regarded beneath the dignity of men of culture. It would nevertheless touch a chord in many a heart. Why then should not the Branch boldly attack the matter? and while it is impossible to lay down scale and method applicable to all practices, I yet feel that something should be done to discourage the present system of credit by which many patients are contributing to their daily nutrition with teeth still belonging to their dental adviser. This subject, in my opinion, is worthy of debate, and I believe by concerted action it is possible to arrive at some plan by which a dental fee may be placed in the same accessible position as that of the consulting physician or surgeon.

Gentlemen, I have encroached upon your time, and committed the first error of my Presidency by thus reading an address. I trust, however, its brevity will insure your pardon. I will detain you no longer, but conclude by returning you most hearty thanks for the great honour conferred by electing me to the Presidential Chair of this important branch of the British Dental Association.

An Unpleasant Experience with Cocaine.[1]

By J. CHARTERS BIRCH, L.D.S.I.

A FEW weeks ago I had a very unpleasant experience with cocaine, particulars of which may prove useful.

I was fitting gold collars for crowns to left mandibular canine and bicuspids, first trying each one to place separately, and using some little pressure to slightly cut the surrounding gum. I applied to the neck of each of the three roots, on a pellet of wool, one minim of 5 per cent. solution of cocaine. I am particular in saying one minim to each, for the small glass container in which I place my solution, which is freshly prepared for each case, holds ten minims, and I roll up and place in the cup at starting ten wool pellets or rolls; these absorb all the fluid.

Placing a roll of absorbent wool between the tongue and alveolus to absorb any solution that might run down with the saliva, I waited about two minutes, changing the position of the pellets occasionally. I then removed the wool and tried the collar upon the first bicuspid. Finding the gum still sensitive I applied a fresh pellet of wool to that root, leaving the others in their place. In about another minute or so I tried the collar upon the posterior root, and finding the gum insensitive, pressed the collar down to place and burnished it close; then removing the remaining pellets of wool, also the one under the tongue which was now in my way, I commenced to fit another collar. It had just got down to place without pain, when the patient remarked that her tongue and throat felt queer, as though they had no feeling, and she did not know whether she was swallowing or not; also that her hands were very cold; I felt them and they were deathlike. I then noticed that she had turned a most ghastly hue, and had dropped down helplessly in the chair, the pulse was scarcely perceptible, but hard and rapid; her breathing quick and short, and appearing to come from the throat, not from the chest at all. Removing her to the couch we laid her full length, but there she was worse and struggled to sit up as she could not breathe while extended. She breathed rather better when she sat upright propped with pillows.

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[1] Read at Meeting of Leeds and District Section of Midland Branch, December 15, 1898.

Opening the case containing nitrate of amyl capsules I found four all broken, some one evidently had been trying them to find out what they contained, I therefore gave the patient a teaspoonful of sal volatile, following that with a cup of hot strong coffee, and later with hot brandy and water.

She appeared to be in a state of collapse, hands, body and feet cold; face blanched and grey, with peculiar bluey green-colour; shivering and shaking constantly. We drew the couch up to the fire, wrapped her in blankets, rubbed her hands and limbs, applied hot water, and gradually, though not for several hours, she rallied, and her breathing improved. Then her colour became better, and later the pulse, and at the expiration of four hours she was able to go home in a conveyance.

After she left I examined all the appliances, and found six unused pellets, so at the most, she could only have had four minims of 5 per cent. cocaine solution applied to her gums on wool; that means perhaps $\frac{1}{8}$ gr., allowing for what remained in the wool unabsorbed.

Unerupted Wisdom Teeth.[1]

By J. F. RYMER, M.R.C.S., L.D.S.Eng.

Mr. President and Gentlemen,—It appears to me a wise course which Mr. Richardson is adopting concerning our branch meetings, when he courteously writes inviting members to assist at these meetings. He gives the option of either reading a paper, or opening a discussion upon some subject. To my mind the latter is far preferable, as it gives all present an opportunity of stating their views, and the younger members of our Association a chance of "coming out," so to speak. Again, it is somewhat monotonous for you to hear the same readers time after time. Pardon me for trespassing. I will endeavour to briefly touch upon the subject for discussion which I have chosen, viz., Unerupted Wisdom Teeth, with their Treatment.

Unerupted wisdom teeth, or to use perhaps a better phrase, "retarded eruption of wisdom teeth," are, perhaps, the most difficult cases which we, as dental surgeons, are called upon to treat, and I fear that they are becoming more common; at least, I have had them brought under my notice more frequently. What is the reason? I take it that it is entirely due to civilisation, as by nature we were formed to eat hard whole-meal bread, &c. Now, owing to the process of flour making, I am told that most of the nourishing portion of the wheat is entirely rejected in order to make white flour from dirty grain; so the nourishment being taken away, we no longer crave for bread as the staple article of food, but we content ourselves with eating daintily prepared food, in which the teeth have to perform as little work as they can. Therefore they naturally not only degenerate in quality, but are gradually endeavouring to do so in quantity—in two ways, either by being so placed that they cannot get out of the jaws, or else by appearing as small, ill-shaped, or often rudimentary teeth. It is the retarded eruption of fully formed wisdom teeth which I wish to consider. Chiefly confined to the lower jaw, they are wedged in its angle obliquely, pressing closely upon the distal cervical portion of the second lower molars, and do not usually give rise to trouble until about the age of 30. They are confined more to the male sex, and very frequently unilateral. As you will observe by the model which I pass round, only one is visible, and there is not the slightest sign of the other one ever coming on the left side. The age of the gentleman from whom I obtained that model is 35.

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[1] Read at the Meeting of the Southern Counties Branch, October 29, 1898.

Now, the symptoms are as follows: In the early stages the patient comes to you complaining of vague neuralgia, referred frequently to the whole side of the face, or even both sides, and there is nothing in any way to guide the dentist as to the origin of the pain, the patient's teeth being all sound. One may notice the absence of the wisdoms, but there is nothing to indicate that their absence is the cause of the trouble. So the natural thing to do is to say, "I have carefully examined your mouth, and although your wisdom teeth have not been yet erupted, still I hardly think that is sufficient to account for all this pain you speak of, especially as there are no local signs of inflammation, &c. I should advise your consulting your medical attendant." Gentlemen, I am taking you through a typical case from beginning to end.

Next Stage.—Now the patient again presents himself, after a lapse of, say a month, with the following symptoms: You notice at once that his general health has entirely given way, he is in a nervous and depressed condition, not only on account of the pain, but the whole nervous system is deranged. Examining him locally, you will usually find that there is considerable swelling of an indurated character, there is spasmodic closure of his lower jaw, often so much that an ordinary probe can hardly be passed between the teeth; his breath is fœtid. Now is the awkward time, more so if this is the patient's first visit, as is often the case. Of course these symptoms may be due to caries, so full inquiry into the history must be made, and as careful an examination as is possible with a probe, &c. As a rule, some pus of a very fœtid bone character can be traced; then one may be pretty certain that the case is one of impacted wisdom.

Having now made a diagnosis, we must adopt the treatment, and without delay. This is by no means easy. After a good dose of nitrous oxide, the anæsthetist must force open the mouth with forceps; when this is done a quantity of pus exudes. No time must be lost now. Remove at once the second lower molar. This is not easy, as the teeth are so firmly wedged together; but, even if both the fangs do not come out, I do not advise groping about for the other one in the dark, as in two different cases which I treated about a year ago (the patients were about the same age); in one case I was able to remove the tooth intact, in the second case only the anterior root came away, and the result was exactly the same. The pressure being removed, the wisdom has the power of pushing forward, and so uninterrupted and steady recovery takes place. When the dentist has removed the tooth, or part of it, then it is desirable to hand the patient over to his doctor for gargle and medicine, at the same time asking him to present himself to you periodically.

In conclusion I will, in a few words, allude to the pathology of these cases. Firstly, the general neuralgia is caused by the great pressure brought to bear upon the nerve filament which supplies the wisdom. This is conducted all over the pair of fifth nerves, which in their turn pass on their impulses to other nerves which have connection with them, and so on. Hence the neuralgia, which is by no means local. Or pressure may be directly upon the nerve trunk.

Spasmodic contraction of the muscles of the jaw may be due to the disorganised nerve supply of the muscles, or to the pressure of inflammatory matter and induration into the muscular and surrounding tissues.

The fœtid pus, which must proceed from the bone itself, is due to the constant pressure upon the hard compact bone, which sets up inflammation of the bone. This pus burrows about, may break externally, or frequently travels downwards into the soft tissue about the pharynx.

I need not dwell further upon the general condition of the patient. This is out of our province as regards treatment. Should the treatment be delayed, permanent anchylosis of the jaw may result.

Now, gentlemen, I am looking forward to hearing from all present, as this subject should give rise to an interesting and instructive discussion. I have merely given you a "skeleton," so to speak, and I leave to you to complete it, and make it perfect.

Habit a Factor to be considered in the Treatment of Regulation Cases.[1]

By GEORGE BRUNTON (Leeds).

The particular bad habit to which I would draw your attention is pushing the mandible out of its normal position, and pressing the lower against the upper teeth in such a way that crowding and irregularity are induced. The models of a case which I hand round will illustrate what I mean. No. 1 is the normal bite, No. 2 shows the bad habit of biting forward which has produced malposition in at least ten teeth. This case is a boy of 14 years. Three years ago I corrected the position of the upper left central incisor, which stood inside the arch. No retaining plate was made as it was not considered necessary, the lower teeth locking the incisor forward. Unfortunately the boy was not brought for examination until a few days ago, when the mother's attention was drawn to the irregular position and the habit of biting forward. She said that the *habit* had been noticed but *not* the irregularity. The advice given was "Cure the boy of the bad habit and *then* I will undertake the regulation of the teeth." Treatment on any other conditions I thought would be without any good result.

Abstracts and Translations.

On the Various Alterations of the Hard Tissues in the Lower Vertebrate Animals.

By Dr. Med. C. ROSE (Munich).

(*With* 28 *illustrations.*)

(Translated for this Journal from the *Anatomischer Anzeige.*)

(*Continued from page* 81.)

Now the question arises, how we are to take up and designate the peculiar hard tissue in the vomer and parasphenoid of fig. 17.[2] The respective bone of the pike are morphologically perfectly homogeneous to the homonymous bones of other osseous fish containing bone cells. It is important, therefore, nevertheless, to designate the tissues in question in spite of their dissimilarity of tissue, as bone tissue, and besides the true cellular bone, to distinguish secondly an unencapsuled, and thirdly a small tubular bone tissue. In reference to the pure tissue the small tubular bone of the pike fully corresponds to trabecular dentine. If, therefore, we wish to designate the tissue in question, only according to the characteristics existing in the interior without regard to its surroundings, we must say the parasphenoid of the pike consists of trabecular dentine, and the vomer, half of trabecular dentine and half of osteoid tissue (or of vitro-trabecular dentine).

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[1] Read at the Midland Counties Branch meeting, held at Blackpool, February 25, 1899.

[2] See February Journal, p. 79.

The small tubular tissue in the vomer of fig. 17 is by no means equivalent to the pure dentine of unilateral growth. If supplementary bone tissue becomes deposited on pure dentine there still exists a distinct boundary between both, formed by the epithelial cuticle. In many cases this cuticle or upper enamel membrane is absorbed before the cement is deposited. A practised eye, however, perceives at a glance that there is a question of two perfectly distinct tissues, which arose at a different period, and were only deposited on each other supplementarily.

In the vomer of fig. 17, on the other hand, there was at first formed at the height of K a little rod of unenveloped hard tissue. From that point the vomer thickened along both sides, exactly like the parasphenoid. On the lower surface of the vomer bone, however, trabecular dentine was replaced by unenveloped hard tissue.

The two expressions "osteoid tissue" and "vitro-trabecular dentine" are quite synonymous as regards tissue. We are dealing with a hard tissue of many-sided growth, originating of itself in the connective tissue containing no protoplasmic enclosures. On the other hand, there are frequently found comprised in this hard tissue thicker masses of connective tissues, so-called Sharpey's fibres. In dry sections and in fossil microscopical dental preparations one naturally sees likewise hollow spaces in the form of small tubes in the place of Sharpey's fibres. The hollow spaces originated by Sharpey's decayed fibres are easily distinguished from the small tubes of pure dentine (fig. 1). On the other hand, in dry sections of trabecular dentine it is not very easy to determine which small canals originally contained protoplasmic cell-processes, and which originally contained Sharpey's fibres.

After the very distinctive name of trabecular dentine has been set up for the particular tissue which Owen on his part called "vaso-dentine," Tomes "osteo-dentine," we would recommend the name of osteo-dentine to be reserved quite in accordance with Owen's meaning for a tissue containing at the same time small dentine canals and bone cells. Pure osteo-dentine is always a transitional tissue, from pure bone on the one side to pure dentine or trabecular dentine on the other. Fig. 19 shows us osteo-dentine tissues of the base of a small gum tooth of Sclerocephalus. In the present case osteo-dentine is a transitional formation between bone and pure dentine.

In dry sections and in sections of fossil teeth it is often difficult to distinguish pure bone substances from separate "interglobular spaces." These spaces originate, as is known, because individual spots of dentine forming foundation substances do not completely calcify.

Interglobular spaces are frequently found in pure dentine, but more rarely in rod-like dentine. They may, however, also appear in osteoid tissue. These interglobular spaces are almost always connected with dentinal canals ; in vitro-dentine they appear less frequently. Should the soft structure be destroyed so that it cannot be any more recognised, whether the hollow space in question contained a cellular body or only uncalcified fundamental masses of hard tissue, then it is easily possible to confound pure bone cavities and interglobular spaces. An experienced odontologist will, however, soon learn to distinguish between the doubtful structures also in fossil microscopical preparations.

It may be considered superfluous to enter into a discussion of the nature of pure bone tissue here, yet I cannot forbear briefly to repeat my conception of the nature of the projecting bone corpuscles. The spider-like processes of the bone corpuscles only come to light, as is known in dry sections, and indeed more distinctly the more fundamentally all the soft structures of the hard tissue have been destroyed. In sections of uncalcified bone tissue no one has yet observed the numerous spider-like projections. The bone cells lying in their cavity have then either no processes at all, or only very short ones. Finally, they completely resemble the bone forming osteoblast cells, which likewise have but very short processes.

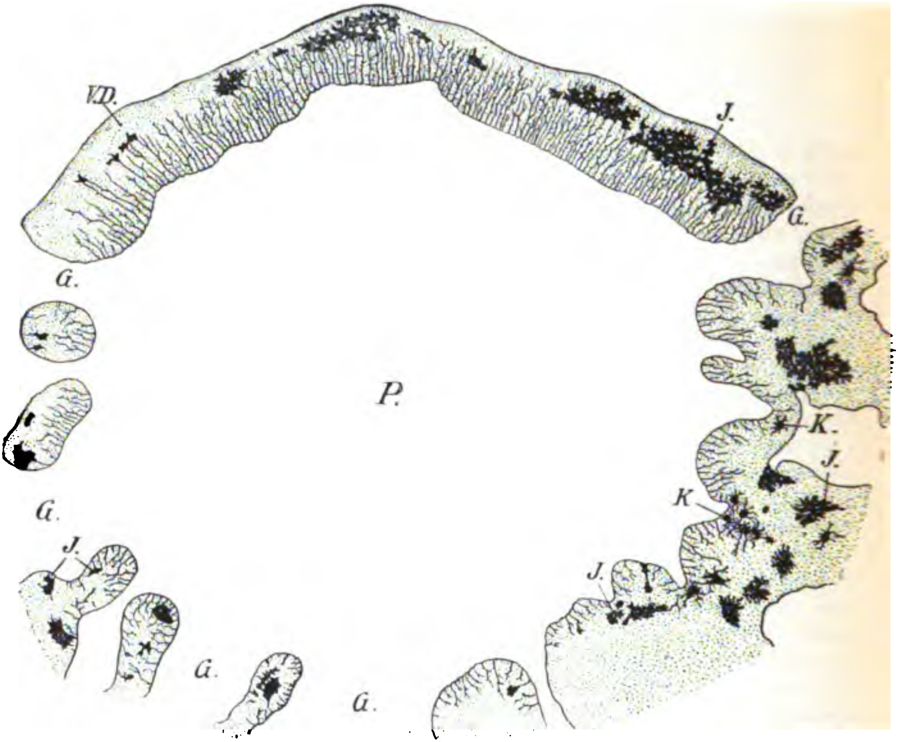

FIG. 19.—SCLEROCEPHALUS LABYRINTHICUS. OSTEODENTINE OF THE BASE OF A SMALL GUM TOOTH.

K., bone corpuscles. J., interglobular spaces. P., periphery. G., vessel canals, which connect the periphery with the large channels of the jaw bone. V.D., Vitrodentine. × 128. From a preparation of H. Credner.

It has now been accepted that the osteoblasts, as soon as they have separated from the fundamental bone substance, force through the secondary growth numerous protoplasmic cell-processes into the calcified bone. Could these tender cell-processes, by absorption of the fundamental substance during the process of decalcification, become so tightly compressed as to be perfectly invisible in decalcified bone sections?

The origin of the numerous transverse small connective branches between the small dental canals had also been indicated in a similar manner. In this case the one long dentine process of the secondary odontoblast cells is said to shoot forth, during the calcification of the dentine, an infinite number of small feather-like side branches, which are absorbed with those of the contiguous small canals. One also sees in dentine the numerous small feather-like branches only in well macerated dry sections ; they are not visible in uncalcified sections. On the other hand, there are real arborisations of the protoplasmic dentine fibres in proximity to the enamel and cement line, which often surpass in delicacy the transverse connecting branches. These actual embranchments have originated through an odontoblast possessing at the commencement several cell processes which, by further growth together, dissolved into one single process. The real branches of the dentine fibres always run out in a forked shape at a sharp angle, while the transverse connective small branches branch off more in a rectangular direction from the dentine channels.

Now the real protoplasmic terminal branches of the tooth fibres are, in spite of their delicacy, quite as clearly visible in uncalcified sections as in calcified. The equally strong transverse connecting branches of the dentinal canals, as also the spider-like processes of the bone corpuscles, are, on the other hand, only clearly to be seen in well macerated or specially coloured decalcified sections. Consequently the last named formations cannot possibly possess the same quality of tissue as the doubtless protoplasmic processes of Tomes' tooth fibres. The fine spider-like processes of the bone corpuscles and the transverse connecting branches of the dentinal tubes cannot possibly represent protoplasmic cell processes.

I have now succeeded in proving that these structures as well as the dentine sheaths of Neumann, the bone capsules of Virchow, and the interglobular spaces, are entirely the remains of uncalcified bone and dentine matrix, which render a distributive organic change in the hard tissues possible. These remains consist of a lime-yielding substance, which has undergone certain chemical changes, so that it has become very resistant to acids and alkalies. With the assistance of the chromic silver method one succeeds in colouring all organic matter (protoplasmic and lime yielding substance) in fresh tooth and bone sections black, whilst the calcified parts remain uncoloured. If young bone is treated, coloured through, with Gerlach's carmine according to Koch's method of petrifaction, the cores of the bone cells become coloured an intense red ; the cell matrix is distinguished by a pale reddish colour from the greyish-white calcified mass of bone tissue. The whole cell matrix is permeated by Canada balsam ; the lime-yielding matter, on the other hand, absorbs the same only with great difficulty. If one now treats these sections supplementarily with chromic-silver, then the protoplasmic structures remain unblackened in very successful microscopical preparations ; the lime-yielding matter, on the other hand, becomes deeply black. From fig. 20 it is very clearly perceived that in the vicinity of Haversian canals a changing thick layer of uncalcified fundamental bone substance rises up in an intense black. Within this black coloured lime-yielding uncalcified fundamental substance, as well as in the calcified tissue itself, the uncoloured protoplasmic body of the bone cells has exactly the same appearance as in decalcified sections. In the calcified tissue the plasmic body which has remained light in colour is surrounded by a thin (black) capsule of lime-yielding substance (Virchow's bone capsule). The spider-like processes are likewise coloured black and form, as indicated in fig. 20, like the bone capsules, only the remains of the uncalcified fundamental substance, which is still present in a connecting thick layer in the vicinity of the Haversian canals. If the sections of fresh young teeth are treated in a like manner, it is proved by successful microscopical preparations that only the so-called Tomes' processes or the dentinal fibres, as a continuation of the odontoblast cells, are of protoplasmic nature. On the other hand, the numerous feather-shaped fine inosculating branches between the Neumann's sheaths, like these sheaths themselves, consist of a lime-producing substance (figs. 21 and 22). From figs. 23 and 24 it is clearly shown that the so-called interglobular spaces consist of several contiguous Neumann's sheaths, through the flowing together of the uncalcified fundamental substance.

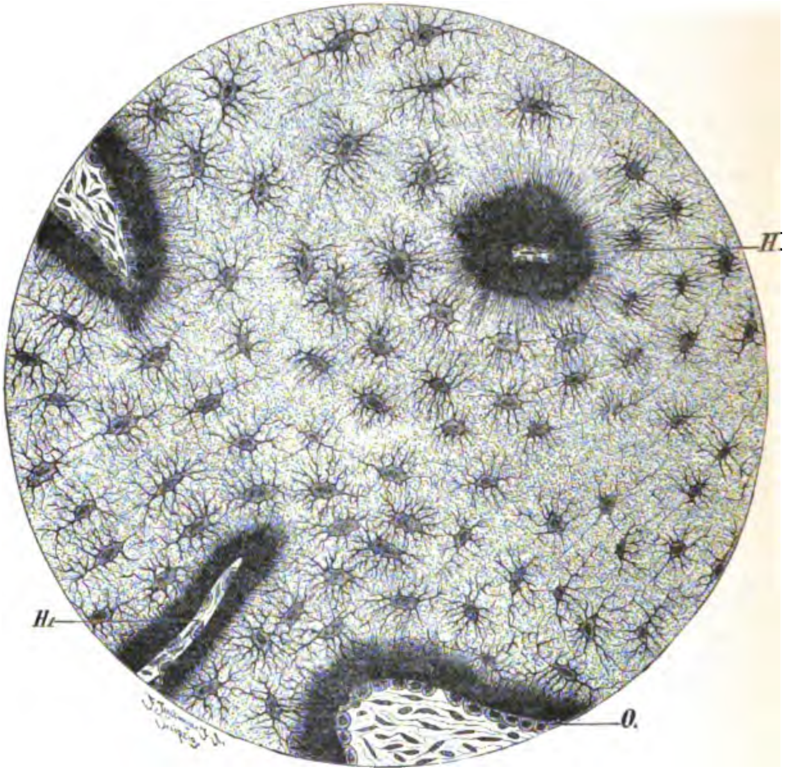

FIG. 20.—SECTION THROUGH THE LOWER JAW OF A CALF STAINED WITH GERLACH'S CARMINE TREATED ACCORDING TO KOCH'S METHOD OF PETRIFACTION. SECONDLY TREATED BY THE AID OF CHROMIC SILVER METHOD.

H., Haversian canals in the transverse section. H.$_1$, Haversian canal in longitudinal section. O., osteoblasts. × 300.

Observation on page 123.

Sections of teeth and bone preserved in alcohol are soaked for twenty-four hours in a solution of ½ per cent. of yellow chromic acid, then washed in very dilute solution of nitrate of silver, again placed twenty-four hours in ¾ per cent solution of nitrate of silver; then both sides are polished on a fine Arkansas stone. The sections are dried by air and mounted in hard Canada balsam.

A hard tissue which is supplementarily deposited from the outside upon the fully formed pure dentine after the dissolving of the epithelium sheath is designated as cement. As regards tissue, cement consists either of pure bone tissue, or of unenclosed osteoid tissue. In many Thecodont teeth, viz., those of Ichthyosaurus, the original bone cement tissue, which is only deposited on the outside, grows supplementarily through the wide cavity of the root into the pulp cavity, and completely fills up the lower part of the same. When cement is present in fully grown teeth it runs out gradually at the base of the tooth into the tissue consisting of trabecular dentine, osteoid tissue, or pure bone tissue of the tooth socket.

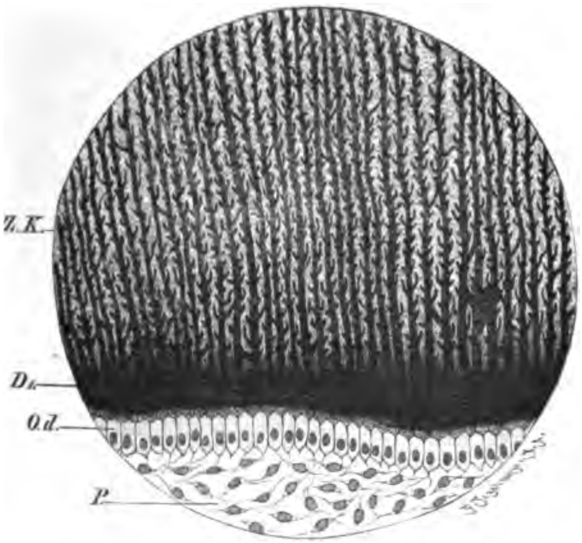

FIG. 21.—SECTION THROUGH THE CROWN OF CANINE TOOTH OF A HUMAN BEING AGED 23. *Vide* KOCH'S METHOD OF PETRIFACTION AND CHROMIC SILVER METHOD.

Z.K., black-stained Neumann's sheaths of the dentinal canals in longitudinal sections with numerous feather-shaped inosculating branches. $D._1$, dentine still uncalcified. Od., odontoblasts. P., cells of tooth pulp. × 250.

All the different changes mentioned until now in the connective tissue of hard structures have this in common, that they are formed from embryonic connective tissue cells, as pure tissue. These cells yield a fundamental substance, in which numerous accumulations of lime-producing fibrils develop themselves. In the process of calcification the lime-producing fibrils themselves remain uncalcified. The lime salts deposit themselves away from between the fibrils. All circumstances point to its not only being a question of a mechanical deposit of lime salts, but that the lime salts enter into a chemical combination with the inter-fibrillous fundamental substance and form a calcium albuminate.

Another kind of hard structure, which appears most frequently in the shark, is essentially different from the hard tissues which we have hitherto considered. In this way calcified atoms are deposited singly, or in connected masses in the fully formed fibrillar substance, or in the fully formed cartilage. The single calcified atoms consist of sediments of carbonic acid calcium, which entirely dissolve in muriatic acid without leaving any special fundamental substance. These lime sediments are also only loosely connected mechanically with each other, so that after the connective matter lying at the bottom has been dissolved by the means of alkali it can easily be pulverised by rubbing between the fingers.

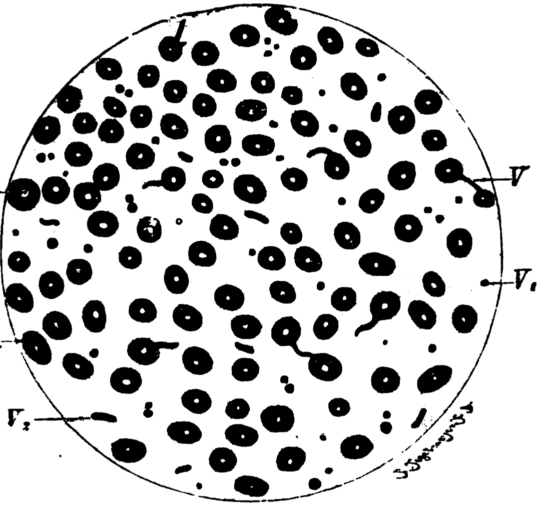

Fig. 22.—Transverse Section through the Dentinal Small Canals of the Crown of the First Molar Tooth of a Child aged 7. *Vide* Koch's Chromic Silver Method.

D.C., protoplasmic dentine fibres (Tomes' fibres). N.Sch., Neumann's sheaths. V., V.$_1$, V.$_2$, fine inosculating branches in a longitudinal, transverse and oblique section. × 1200.

According to a verbal proposition of Hofer I should like to designate that kind of hard structure as "calcified connective substance." The exact difference between the above-mentioned pure hard tissues and this calcified connective substance cannot be too impressively brought forward. It is quite inadmissible to designate the calcified cartilage of the vertebral column of the shark simply as bone! When real bone takes the place of cartilage, the cartilage becomes previously dissolved. In its place embryonic connective tissue cells (osteoblasts) develop themselves, and these on their part first form the fundamental bone substance. There is therefore no question of cartilage being changed into bone tissue, but only of a local indemnification of cartilage by bone tissue.

The vertebral column of the shark on the other hand always consists of pure cartilage tissue quite indifferently, whether the same be calcified or not. The calcified connective substance is in its development, as well as in its origin, of later formation. Thus for example the basal surface of the older and more simple shark's scales consist either of osteoid tissue (fig. 1) or of trabecular dentine (fig. 12), only in the scales of the younger sharks, particularly in the roach, the basal plane becomes enlarged through a deposit of calcified connective substance.

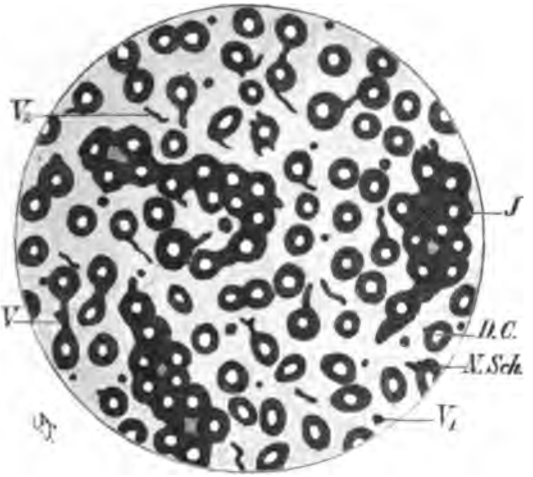

FIG. 23.—TRANSVERSE SECTION THROUGH THE DENTINAL CANALS OF THE CROWN OF A YOUNG TOOTH OF MACROPUS LUGENS.

D.C., dentinal fibres. N.Sch., Neumann's sheaths. Through their flowing together the three interglobular spaces originate: J., illustration. V., V.₁, V.₂, fine inosculating branches in a longitudinal and transverse section. × 1200.

Briefly to repeat, the hard structures of the connective tissue in vertebrate animals are distinguished by the following changes:—

(*a*) PURE HARD TISSUES.

These are characterised through embryonic connective tissue cells (odontoblasts) and osteoblasts secreting a fundamental substance, which becomes changed partly in lime yielding fibrils, partly combining itself chemically with secreted calcified salts.

(1) Pure tooth bone, dentine or ortho-dentine (v. Kupffer).

Hard tissue with smooth surface, which grows out from the inner wall of an epithelium sheath on one side towards the middle of the uniform pulp cavity. (*a*) Tubular dentine—normal dentine, contains the known dentine canals for the reception of protoplasmic cell processes of dentinal formations (odontoblasts); (*b*) unenclosed dentine—vitro-dentine, contains no protoplasmic enclosures ; (*c*) vascular dentine — vaso-dentine, contains blood-vessel capillaries.

(2) Rod-like dentine—trabecular dentine, a hard tissue, which, without reference to the epithelium sheath, originates spontaneously in the connective tissue in the shape of separate little rods in the young tooth pulp, or in its immediate proximity, and which can grow on all sides. This tissue contains numerous short dentinal canals, which are filled up with protoplasmic cell processes.

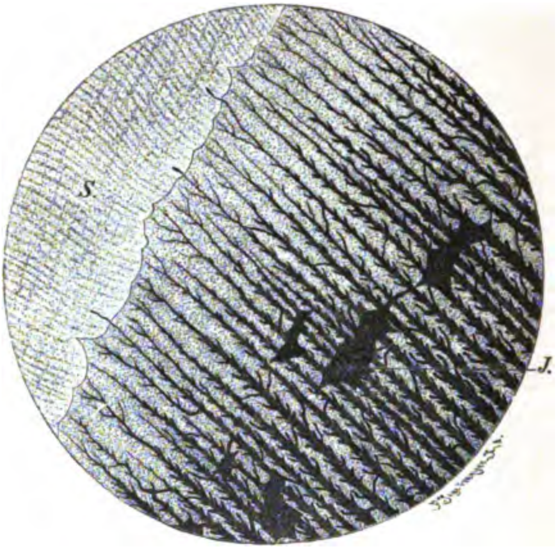

FIG. 24.—LONGITUDINAL SECTION THROUGH THE CROWN OF THE CANINE TOOTH OF A HUMAN BEING AGED 23.

S., enamel. J., interglobular spaces. × 250.

(3) Unenclosed hard tissue—osteoid tissue, a hard tissue growing all round, which contains no protoplasmic enclosures, and besides supplies sometimes pure bone tissue, sometimes trabecular dentine. In the latter case the synonymous designation vitro-trabecular dentine is admissible.

(4) Bone--os, a hard tissue growing all round, which originates everywhere in the connective tissue of the body, and which grows round its own formative cells (osteoblasts), in order to retain them as alimentary organs for the completed tissue.

(5) Bone dentine—osteo-dentine, transition tissue between bone on one side, dentine or trabecular dentine on the other, contains at the same time bone cells and dentine canals with protoplasmic cell processes.

(*To be continued.*)

Carborundum.

THIS valuable substance is so extensively used in dental laboratories that our readers may be interested to know something of its origin and manufacture. The accompanying article, which we reprint from *Invention*, appears to supply all possible details of information on the subject.

CARBORUNDUM: ITS ORIGIN, MANUFACTURE, AND USE.

No new field of science can develop apart from parallel industries, says the *Electrical Age*. Associated with the increasing use of electricity, we find a host of new substances dependent upon it for their existence, among which carborundum is certainly the most interesting. To produce this remarkable crystal all that is necessary is an iron pot holding a layer of carbon, serving as one electrode, a carbon rod, acting as the other electrode, and a mass of carbon and clay, through which the current passes. With this simple apparatus and sufficient electrical energy the mixture, raised to a terrific heat for some hours and then allowed to cool, will be found to contain crystals of carborundum.

From a commercial standpoint the experiment is of tremendous importance. From a scientific point of view it represents a successful experiment, doubly interesting because it points to a new discovery that may be the forerunner of others of inestimable value. In fact, the electric furnace will be the means of solving some of the great mysteries connected with the formation of gems and minerals and, possibly, even the primitive condition of matter itself. Furnaces in which carborundum is made may be called arc and incandescent furnaces. In the first type the electrodes were movable, the arc produced between them being used to play upon the mass from which carborundum would be produced. This system was abandoned, and the incandescent furnace took its place.

Mr. E. G. Acheson discovered carborundum in 1891, and experimented with both kinds of furnaces, finally adopting the second in conjunction with the process involved in its use, on account of its extreme practicability and efficiency. In this furnace a core is used which has either been taken from an old furnace or is built up anew from a mixture of sand, salt, sawdust, and coke. Carborundum is the carbide of silicon, but was supposed to be a combination of carbon and aluminium until further experiments proved clearly that silica was indispensable, the quality of the carborundum depending entirely upon it. As larger and larger furnaces were used, the preliminary processes gave rise to a purer and better product than ever before.

In 1895 the furnace room of the Carborundum Company, at Niagara Falls, held five actively operating furnaces. Each furnace was 9 feet long, 1 foot 9 inches deep, 1 foot 11 inches wide, and held a core 8 feet long. The furnaces in use to-day are 16 feet long, 5 feet wide and 5 feet deep. The core formerly used was rectangular in cross-section, but has been changed to one that is circular, measuring 9 inches in diameter. Difficulty was experienced at first, due to the formation of gases in the incandescent mass and the formation of craters, with a subsequent eruption like that proceeding from a miniature Vesuvius. By mixing sawdust with the sand, coke, and salt, the mixture, being filled with interstices, allows the free escape of gases to take place without these symptoms.

In the larger furnaces 300lbs. of carborundum per day are produced. In the original small sized furnaces ½lb. per day was all that could be obtained. Two thousand horse-power hours are required in a furnace possessing a capacity of 300lbs. of carborundum a day; consequently each pound of carborundum produced requires a consumption of seven horse-power hours. In preparing the constituents of the mixture for use, neither the sand, sawdust, nor salt require further treatment, but the coke is put through a grinder and then through two cylindrical screens. In the first the coke dust is removed, while in the second the meshes are sufficiently large to allow those particles required for building up the core to fall through.

The weighing and mixing is done very readily by two men, and the mass is then brought to the furnace. Each furnace is supplied with two terminals, consisting of sixty carbon rods, 3 inches in diameter and 30 inches long. An iron frame holds them in place; a plate of the same metal is bolted to the frame, with holes bored opposite each carbon rod. A copper rod ^{3} inches in diameter fits tightly into each carbon end. The interior of this box-like arrangement is then filled with graphite, tightly packed to make good contact. Heavy ribbed projections allow for connection with electric cables.

The electrical apparatus required for the manufacture of carborundum consists of a transformer, the second largest in the world, having a capacity of 830 K. W., or 1,100 horse-power. It transforms a 2,200 volt current, received from the Niagara Falls Power Company, down to 185 volts. The transformer possesses a regulator, the function of which is to raise the pressure to 250 volts, or reduce it down to 100. To keep the transformer cool and effectively dissipate the 40 horse-power wasted in it as each oil is circulated through it by means of a small pump driven by a motor, the oil flows from one tank placed 8 feet above the floor to the transformer. The upper tank is kept cool by means of two coils of pipe carrying cold water. The pump drives the oil through the entire system, which includes, in all, the regulator, transformer, and upper oil tank. The tank resting on the floor merely receives the overflow of oil. The oil being an insulator, may be freely circulated without risk and, if kept cool, rapidly carries off all excess heat.

From the transformer two upper conductors lead into the furnace room. Each of these conductors is 8 square inches in cross-section. In the transformer room is a rather unique switch. A great iron vessel, circular in shape, holding a solution of salt and water, has suspended in it an iron plate. The iron plate connects to one pole of the circuit, and the iron vessel to another. When it is to be closed the iron plate is lowered into the water and touches the bottom. When the circuit is to be opened the plate is lifted completely out of the saline solution. This simple method of opening and closing the circuit saves expense, danger, and difficulty.

The core is built up to within 4 inches from the carbon terminals at either end. The space between each end of the core and the inner extremities of the carbon rods is filled with finely ground coke. Pieces of sheet iron are used to limit the length of the core during its building up. They are removed after the coke filling has been made. These furnaces are 16 feet long inside, 5 feet wide, and 5 feet deep. At the bottom of each is a canal of cylindrical shape, 10½ inches in radius, and the total length of the furnace. This canal receives the core, which weighs 850lbs., if it has been previously used, or 1,100lbs, if it is fresh and new.

A practical experience with old and new cores is an immense advantage in the manufacture of carborundum. The old core possesses a much greater conductivity than the new core. With an old core the current rises up to 1,200 amperes. With a new core, in the beginning, the current is very small. The resistance of either a new or old core rapidly diminishes, the carbon having a lesser resistance hot than cold. With an old core the energy consumed in one hour will reach 1,000 horse-power. The current is systematically reduced until the core possesses a fixed resistance; it then flows through uniformly. At the end of twenty-four hours the current is discontinued and the furnace allowed to cool. Meter readings taken at regular intervals of a quarter of an hour give, by calculation, the total watt consumption in each furnace.

The core of a carborundum furnace possesses an outer layer of almost pure graphite, which was first mistaken for carborundum crystals. An examination of this material leads to the conclusion that graphite is not formed directly from carbon, but combines, during incandescence, with some other compound, which is subsequently decomposed, leaving behind crystals of graphite. While the current is passing through the furnace, gases escape in large quantities, a single furnace throwing off thousands of cubic feet of carbon monoxide.

General Medical Council.

WE learn that at the meeting of the Executive Committee of the General Medical Council, held on February 27, the following supplementary notice was approved, to be issued to dental practitioners as to the administration of anæsthetics, as referred to in the resolution passed by the General Medical Council on December 1, 1898:—"Any registered medical practitioner who knowingly and wilfully assists a person who is not registered as a dentist in performing any operation in dental surgery, either by administering anæsthetics or otherwise, will be liable, on proof of facts, to be dealt with by the General Medical Council as having been guilty of infamous conduct in a professional respect." Members of the Association will remember that this subject has occupied the attention of the Representative Board and the General Meeting on certain previous occasions. They will therefore most heartily welcome the results of the deliberations of the Executive Committee of the General Medical Council in reference to this important question of "covering." A further report of the Council's action in the matter of "covering," both as regards the medical and dental professions, will be given in a future issue.

Editorial.

The Annual General Meeting, 1899.

AS announced in our last issue, the Annual General Meeting will be held at Ipswich on May 20, 22, and 23. The circumstances which led to the selection of Ipswich will be within the recollection of our readers; the invitation of the Eastern Counties Branch, the selection of Norwich and its subsequent abandonment in favour of Ipswich, are details with which all of our members are acquainted; there is no need, therefore, to dwell on them.

Although a small town compared with former meeting places of the Association, Ipswich is nevertheless exceptionally suitable for such a purpose. It has been the rendezvous of the British Association and of the British Medical Association, so there should be no lack of accommodation; moreover, its well-known picturesqueness and its literary and artistic interest render it particularly attractive. Admirers of Dickens will remember the "Great White Horse" in connection with the adventures of Mr. Pickwick, and lovers of the pencil and the brush will find themselves in the country of England's greatest landscape painters—Constable and Gainsborough. The sea-breezes of Felixstowe are within easy reach, and those who prefer their breeze without the salt may revel in the bracing air of the country in the neighbourhood of Ipswich itself. "All in the merry month of May," the jaded dentist will find recreation and healthy exercise in speeding along the good, level roads on his bicycle; or should his tastes lie in the direction of golf—and how many busy brain-workers are there whose tastes do not lie in this direction?—the kindness of the local sportsmen and the excellent golf-links on the borders of the town may tempt him to wield the "cleek" or to flourish the "brassy" in friendly competition with the men of Suffolk.

The "Crown and Anchor" will be the social head-quarters, and the opening meeting and general business meetings will take place at the Town Hall, which stands in the centre of the town; and in addition the Public Hall and the Opera House have been engaged for the purposes of demonstrations, and meetings, and for the general exhibitors. Thus all requirements will be amply fulfilled, and the fact that all these places lie within a stone's throw of each other will be an additional convenience. Electric light and motive force are unfortunately luxuries which the town does not yet possess, but they are looked for in the near future.

An informal reception will be held on Friday evening before the meeting, and a Branch reception at the Town Hall on the Saturday evening. With regard to Sunday, nothing has yet been decided, but all further details will be duly announced in these columns. The Eastern Counties Branch may be relied upon to do its best in welcoming the British Dental Association, and when we say that Mr. Fenn Cole has undertaken the chairmanship of the Local Arrangements Committee—to which modest but arduous position Mr. Cole's retiring disposition has assigned him, for no persuasion could induce him to preside—we feel quite safe in guaranteeing that nothing will be left undone to promote the enjoyment and comfort of all concerned.

Of papers, demonstrations, and exhibits, we trust there will be no lack; and here we take the opportunity of reminding those who have the intention of benefiting their fellow-members by contributing to this part of the programme, that the Secretary of the Association would be glad to hear from them as early as possible, in order that the list may appear in due course.

The business side of the meeting will be in the safe hands of Mr. Mummery, to whom great thanks are due for his willingness to fulfil the duties of Presidency at great personal inconvenience; but we hope and feel sure that his labours will be lightened by the support of those who have the scientific aims of the dental profession most at heart.

Correspondence.

We do not hold ourselves responsible for the views expressed by our correspondents.

Solila Gold.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—The contribution of Dr. Taggart to the *Ohio Dental Journal* on the use and abuse of de Trey Gold, quoted in the February issue of your Journal, induces me to return to this subject. It may be remembered that solila gold was strongly advocated as a superior material for filling teeth, when it was first introduced into this country. In common with others I procured some, and as the claims made for it in the printed matter enclosed with it seemed to me to be extravagant, and as the directions for using it appeared equally absurd, I wrote a letter to your Journal, signed with my initials, in which I ventured to "sound a note of warning," and to counsel care in its use. I instanced experiences with Watts' crystal gold, and alluded to the disappointment that had happened in the past from the *abuse* of this most excellent preparation. Solila gold can now be judged calmly and dispassionately. The original enthusiasm has had time to "simmer down." The question to be considered is, does this preparation possess any advantages over the older and well-tried forms of gold, and if so, what are these advantages? The only one I can discover is that the pieces at first packed down stay readily in place, and this makes possible the filling of awkwardly shaped cavities. The longer I practise, however, the more I realise the inadvisability of attempting to fill teeth with gold unless the cavity can be prepared on certain definite lines. Given a properly prepared cavity, there is rarely any particular difficulty in starting the filling with Watts' crystal gold or with foil, and without resorting to drilling starting pits. Occasionally difficulties may arise, and it is useful to have some solila gold or some Nedden's crystal gold at hand. The need for them will not often arise. It is impossible to make better adapted fillings with solila gold than with the older forms. Perfection cannot be surpassed. The cohesion and solidity of fillings made with Watts' crystal gold or with foil cannot be beaten by any of the newer forms of gold. Quality for quality, can fillings be made more rapidly with solila gold than with older forms? I doubt it. Time for time, quality for quality, my experience and experiments are in favour of the older forms. The tendency is to work crystal golds too rapidly. Solila gold and Nedden's gold lend themselves especially to this; the result is imperfect condensation and inferior work. I have no desire to "pose as an authority," or to do anything more than give conclusions arrived at as the result of some observation and experiment. Different operators prefer various methods. Crystal gold suits some better than foil. This is a question of individual peculiarity, or fancy, or habit. Whatever opinion anyone may personally hold about solila gold I think it is now generally admitted that it has not revolutionised the filling of teeth.

Yours faithfully,

WM. CASS GRAYSTON.

The Benevolent Fund.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—I should be glad if any members who have at any time had dealings with a man named Robert Spalding Watson would communicate with me.

Yours truly,
JOHN ACKERY,
Hon. Sec.

11, *Queen Anne Street, W.*
March 9, 1899.

Association Intelligence.

The Honorary Secretary of the Association desires to emphasise the statement he has on several occasions previously made, viz., that anonymous communications relating to cases of irregular practices, or alleged infringements of the Dentists Act, cannot receive from him that attention he would wish to bestow upon them, or they may deserve.

PRELIMINARY PROGRAMME.

Annual General Meeting,

TO BE HELD IN IPSWICH.

Friday Evening, May 19.

Informal Reception.

Saturday Morning, May 20.

Meeting of the Representative Board and the General Meeting in the Town Hall. Presidential Addresses.

Afternoon.

Papers and Discussions.

Evening.

Reception by the Eastern Counties Branch at the Town Hall.

Whit Monday, morning, May 22.

The Benevolent Fund Meeting and the Microscopical Section's Meeting in the Town Hall.

Afternoon.

Demonstrations in the Public Hall and Opera House.

Evening.

The Annual Dinner of the Association.

Tuesday, May 23.

Papers, Demonstrations and General Business.

During the Meeting an interesting exhibition of Dental Instruments, &c., will be held in the Public Hall by the leading dental manufacturers and others.

The Social Headquarters of the Association will be the Crown and Anchor Hotel.

Various other arrangements are in progress for the social entertainment of members and ladies. For the present they are in the hands of the Local Arrangements Committee, of which Mr. Fenn Cole is Chairman and Mr. Norris Snell Hon. Secretary; but due notice will be given of them in the April number of the Journal.

Members willing to read papers or give demonstrations at the meeting are requested to kindly send their names to the Hon. Secretary, 40, Leicester Square, W.C.

MICROSCOPICAL SECTION.

NOTICE.

President: Mr. F. J. BENNETT.
President-elect: Mr. J. J. ANDREW.

The seventh meeting of the Annual Microscopical Section of the British Dental Association will be held at the Town Hall, Ipswich, on Monday, May 22. Members desirous of reading papers or exhibiting specimens are asked to send in their names either to the President, Mr. F. J. Bennett, 17, George Street, Hanover Square, or the Hon. Secretary, Mr. A. Hopewell Smith, 26, Berkeley Square, W.

REPRESENTATIVE BOARD.

The following members retire from the Board at the Annual General Meeting, but are eligible for re-election: viz.—Messrs. Storer Bennett; D. Corbett, jun.; G. Cunningham; T. Gaddes; W. E. Harding; W. Helyar; R. P. Lennox; L. Matheson; F. W. Richards; J. Walker.

N.B.—There are ten vacant seats occurring at the Board in May, and nominations of candidates for election to them, whether retiring members or new candidates, must be sent to the Hon. Secretary, 40, Leicester Square, London, on or before April 20 next.

Nominations may be made by any six members.

W. B. PATERSON.
Hon. Secretary.

Meeting of the Representative Board.

A MEETING of the Representative Board was held at 40, Leicester Square, London, on Saturday, March 4, at 3 p.m., Mr. J. HOWARD MUMMERY, President, in the chair. The following members attended:—Mr. W. A. Hunt, President of the Association; Messrs. J. Ackery, J. H. Badcock, Storer Bennett, E. G. Betts, Walter H. Coffin, W. H. Dolamore, W. Hern (Treasurer), S. J. Hutchinson, W. B. Paterson (Hon. Secretary), C. Robbins, W. Rushton,

A. Hopewell Smith, Sydney Spokes, J. Smith Turner, Charles West, W. H. Woodruff (London); A. F. Hilder (Birmingham); Wm. Helyar (Bristol); Geo. Cunningham, R. P. Lennox (Cambridge); C. Browne-Mason (Scarborough); T. A. Goard (Exeter); J. C. Foran (Eastbourne); T. Gaddes (Harrogate); Lawrence Read (Newbury); E. Apperly (Stroud); T. Edward King (York).

Letters and telegrams regretting inability to attend were received from the following:—Messrs. W. H. Breward Neale, W. E. Harding, C. Rees Price, A. Sidney Jones, J. F. Craig, F. W. Richards, J. H. Redman, F. Harrison, I. Renshaw, J. C. Storey, and S. V. Richardson.

The minutes of the last meeting were read and signed.

The PRESIDENT, in dealing with the matters arising out of the minutes, referred to the increase in size of the Journal and to the mode of arrangement of contents. He believed he was only expressing the feeling of the Board when he called it an improvement. The pamphlet on Registration of Mr. Smith Turner, which the Board had ordered to be issued, was still to be obtained of the Secretary by any members who might have need of further copies.

BALANCE SHEET.

The TREASURER (Mr. W. Hern) presented his Balance Sheet of the Association for the year 1898, and in doing so read the following Report of the Journal and Finance Committee:—

REPORT OF JOURNAL AND FINANCE COMMITTEE.

In presenting its Annual Report the Committee considers the Association is to be congratulated on its financial position. This shows £278 7s. 2d. as against £254 16s. 5d. in 1897. The investments have been increased by £200. The legal expenses amount to a saving over 1897 of £151 14s. 5d. On the other hand, the Journal account shows an extra expenditure of £129 6s. 2d. This, at first sight, may appear unsatisfactory, but when the items are taken into consideration the amount may be readily understood. The extra cost divides itself under the following heads:—

Extra pages.
„ members.
„ free copies in consequence of increased advertisements.
„ cost of blocks.
„ art paper.
„ number of copies in stock.
„ postage.
„ translations.

(Signed) STORER BENNETT, *Chairman.*

February 27, 1899.

The Treasurer desired in the first instance to express his agreement with the Committee's Report. The surplus of £278 7s. 2d., coupled with the fact that the Reserve now stood at over £1,000, was a subject for congratulation.

In commenting on the various items of the Receipts and Expenses Account, he pointed out that a considerable saving had occurred in legal matters, much of which was due to the great personal attention paid by the Executive to the various cases, only a few of which were indicated in the balance sheet. The regrettable incident of a deficit in the JOURNAL account, notwithstanding an increase in the advertisements' receipts, had been fully investigated by the

THE BRITISH

1897. **Dr.** RECEIPTS AND EXPENSES ACCOUNT FOR

GENERAL ACCOUNT.

1897. £ s. d.		1898. £ s. d.	£ s. d.
30 0 0	To Rent (one year)	30 0 0	
50 0 0	,, Secretary (Mr. Pink), salary, one year...	50 0 0	
6 6 0	,, Audit of 1897 Accounts ...	7 7 0	
191 7 10	,, Legal Expenses (8 cases) ...	39 13 5	
149 10 2	,, Expenses of Annual Meeting	139 3 9	
70 17 8	,, Stationery and Printing ...	69 6 3	
33 6 4	,, Postages, Directories, Registers and Sundries	35 6 5	
			370 16 10
531 8 0			

ASSOCIATION JOURNAL ACCOUNT.

1897. £ s. d.		1898. £ s. d.	£ s. d.
575 14 4	To Printing and Publishing ...	725 2 0	
51 1 0	,, Reporting at Annual Branch Meetings and other Societies	62 8 2	
100 16 0	,, Editor's Salary	100 16 0	
6 4 1	,, Sundries	11 11 4	
			899 17 6
1,265 3 5			
165 0 8	To Balance forward, Surplus on General Account	317 17 7	
89 15 9 (Surplus)	*Less* Deficit on Association Journal Account	39 10 5	
			278 7 2
£1,519 19 10			£1,549 1 6

1897. **Dr.** BALANCE SHEET,

1897. £ s. d.		1898. £ s. a.	£ s. d.
1 1 0	To Creditors: Amount at Suspense Account		1 1 0
948 6 9	,, Balance from last Account ...	1,203 3 2	
254 16 5	,, Balance brought down ...	278 7 2	
			1,481 10 4
£1,204 4 2			£1,482 11 4

DENTAL ASSOCIATION.

THE YEAR ENDED DECEMBER 31ST, 1898. **Cr.** 1897.

GENERAL ACCOUNT.

	£ s. d.	1898. £ s. d.	1897. £ s. d.
By Subscriptions	998 0 6		1,015 17 6
Less One-third taken to Association Journal Account below...	332 13 6		338 12 6
		665 7 0	677 5 0
By Interest on Sum on Deposit at the London and County Bank	3 9 11		2 5 4
,, Dividend on India Stock ...	19 17 6		16 18 4
		23 7 5	
		688 14 5	696 8 8

ASSOCIATION JOURNAL ACCOUNT.

	£ s. d.	1898. £ s. d.	1897. £ s. d.
By One-third of Subscriptions as above	332 13 6		338 12 6
,, Advertisements	472 18 4		427 9 2
,, Sale of Copies	54 15 3		57 9 6
		860 7 1	
		£1,549 1 6	£1,519 19 10

JANUARY 1ST, 1899. **Cr.** 1897.

	£ s. d.	1898. £ s. d.	1897. £ s. d.
By Cash at London and County Bank—on Deposit ...	200 0 0		200 0 0
,, Cash at London and County Bank—on Current Account	197 3 7		149 18 3
,, Cash with Treasurer (subscriptions banked in January, 1899)	10 10 0		22 11 6
,, Cash with Treasurer (Petty Cash)	0 17 4		1 6 0
		408 10 11	
,, £674 16s. 5d. India 3½ % Stock		796 12 2	596 17 6
,, Debtors: Messrs. Baillière, Tindall & Cox		277 8 3	233 10 11
		£1,482 11 4	£1,204 4 2

We have written up the above statement and balance-sheet from the books and vouchers of the British Dental Association, and certify that they are correct. We have also seen the certificates and vouchers for the cash and investment.

J. W. BUTCHER & Co.,
Chartered Accountants and Auditors,
Imperial Buildings,
Ludgate Circus, E.C.

Feb. 20th, 1899.

Journal and Finance Committee, and the causes leading to it mentioned in their Report. He concluded by expressing his willingness to answer any questions that might be put to him.

Some questions were then addressed to the Treasurer by Messrs. WEST, HUTCHINSON, CUNNINGHAM and SPOKES, which were duly answered.

Mr. HUTCHINSON proposed the adoption of the balance sheet.

Mr. WOODRUFF, in seconding, said, as one who had had experience of treasurer's business, he considered the balance sheet to be extremely satisfactory, and he did not attach any importance to the slight deficit in the JOURNAL account under the circumstances in which it had arisen.

On the motion being put from the chair it was declared carried (*nem. con.*).

The TREASURER proposed the auditor's fee should be 7 guineas.

Mr. WOODRUFF seconded, and the proposal was agreed to.

TREASURER'S RETIREMENT.

The PRESIDENT announced that the Treasurer, Mr. W. Hern, did not propose to seek re-election at the expiration of his term of office in May next. The Business Committee submitted the name of Mr. W. H. Dolamore for the office. He moved, therefore, that the nomination be received and forwarded to the Annual General Meeting. This was agreed to.

ROYCE CASE.

The next business before the Board was the question of Mr. G. Cunningham's support or non-support of a petition of Mr. E. W. Royce, of Tunbridge Wells, to the Medical Council for registration under the Dentists Act, a question which arose at the Annual General Meeting in Bath, and which was referred to the Business Committee. The following report of the Business Committee was now read:—"That inasmuch as no documents bearing upon the Royce case have been submitted to the Business Committee, the Committee are unable to report to the Representative Board."

A discussion ensued. Mr. CUNNINGHAM said the Board would remember how on a former occasion he had offered to submit the matter to a Committee of Arbitration, and had named Mr. Tomes, the President and the Hon. Secretary of the Board, as members of that Committee, but this the Board had declined to agree to. He complained of the manner in which the question had been sprung upon him at the Bath Meeting, and said that he could not in fairness be bound by any agreement arrived at there on the spur of the moment. Publicity had been given to the matter then, and he clamed the right to the same publicity now for his answers to the interrogatories which had been put to him. All he desired was an unprejudiced tribunal to judge him in the matter. He had had experience of the work of the Business Committee and of the Representative Board, and he was convinced that more time was needed to consider his case than those bodies could conveniently give. He would still prefer a Committee of Arbitration to consider the documents he had brought with him to the meeting.

The "previous question" having been moved by Mr. Gaddes, seconded by Mr. Lennox, and the motion having been declared not carried, a further discussion ensued, during which Mr. Cunningham expressed his willingness to submit the documents to a special meeting of the Business Committee.

PARIS INTERNATIONAL DENTAL CONGRESS, 1900.

The HON. SECRETARY read a letter of invitation to the Paris International Dental Congress in 1900, which he had received officially from the General Secretary, and referred to the fact that two Congresses were in course of formation, viz., an International Medical Congress with a Dental Section open to dentists possessed of medical qualifications, and an International Dental Congress open to qualified dentists, both Congresses to take place in August, 1900. He drew attention to a statement that there was a feeling of rivalry at present existing between the Congresses as well as between certain French Dental Schools regarding the Meeting. He submitted a proposed list of rules of the Dental Congress as receeived from the General Secretary, with an official request to the Board for assistance by the establishment of a Committee to work in conjunction with the Paris Executive.

He reported that the Business Committee had approved of the suggested formation of a Committee by the Board to advise the Executive of the Paris International Dental Congress upon the eligibility of dentists coming from the British Isles for membership of the Congress.

Mr. HUNT said that he, as President of the Association, had also received an official request to the same effect from the Paris Executive of the International Dental Congress. His correspondent, Dr. Sauvez, had been polite enough to say that the success of the Paris meeting would largely depend upon the members of the British Dental Association coming over in numbers. He had to confess, however, that a difficulty had arisen in his mind with regard to two Dental Congresses occurring at the same time in Paris. If the International Dental Congress was supported he failed to see the good of a Dental Section being held in the International Medical Congress. He felt unable to advise what should be done under the circumstances at present.

The PRESIDENT thought it might be advisable to wait until the Medical Congress had further considered the question.

Mr. CUNNINGHAM hoped the Board would assent to the formation of a small Committee which would greatly assist the labours of the Executive of the Paris International Dental Congress. Other dental societies were associating themselves with this Congress. And if it was desired to see what American dentists thought, he would recommend a careful perusal of the editorial article in the *Cosmos* for January, 1899. The men entrusted with the work of the present Congress were men of experience in the conduct of Congresses, and the Board might rest assured that the meeting would be well done.

Mr. ACKERY asked if the Congress subscription of 25 francs applied to foreigners, or to members resident in France only?

The HON. SECRETARY said that in the draft of the rules before him it appeared to apply to members resident in France.

Mr. CUNNINGHAM believed it would be found that only Frenchmen would be asked to contribute.

Mr. DOLAMORE moved that a Committee of this Board be appointed, as proposed by the Business Committee.

Mr. CUNNINGHAM seconded. The motion was carried.

Mr. RUSHTON moved that the Committee consist of five members. Mr. CUNNINGHAM seconded. The motion was carried and the following members were chosen to serve on the Committee :—Messrs. Hunt, Paterson, Dolamore, Cunningham and Hopewell Smith.

Mr. HUNT asked what official answer he should make in answer to the question, "Will the British Dental Association join us?"

Mr. SMITH TURNER thought it might be desirable to notify the members of the Association first, and decide nothing until the Annual General Meeting.

The subject then dropped.

DR. R. THEODORE STACK.

The PRESIDENT announced the resignation of Dr. R. Theodore Stack as a member of the Association. He briefly referred to the eminent services rendered to his profession and to the Association by Dr. Stack and to the great regret all who knew him felt in losing such services through illness. The Business Committee, in view of the exceptional circumstances of the case, had thought it desirable to recommend to the Board that Dr. Stack should be elected a Fellow of the British Dental Association under Article 8, sub-clause (*a*). He had the greatest pleasure, therefore, in moving that Dr. Stack be nominated for election as a Fellow at the next Annual General Meeting.

Mr. SMITH TURNER said that, as the oldest and probably the most worn-out member present, he felt a great pleasure in regretfully seconding the motion made from the Chair.

The motion was unanimously agreed to.

ANNUAL GENERAL MEETING INVITATIONS FOR 1900.

The PRESIDENT announced that two invitations had been received for the Association's Annual General Meeting of 1900, viz., from the Southern Counties Branch, with Brighton as the place of meeting; from the Midland Counties Branch, with Leeds as the place of meeting.

A short discussion took place, but, in the absence of members from the Southern Counties Branch, it was decided to adjourn the further consideration of the question to the next Board meeting.

UNREGISTERED DENTAL PRACTITIONERS.

Mr. KING presented a list of names of 100 unregistered dental practitioners practising in the Midland Counties Branch district, in support of any movement that might in future be made for an amendment of the Dentists Act.

RETIREMENT OF PRESIDENT OF BOARD.

The President said he had now to remind the Board that his own term of office as President of the Representative Board expired in May, and his election to the Presidency of the Association would create a vacancy at that date. Certain inquiries had been directed towards finding his successor, and he was happy to mention to the Board the name of Mr. Storer Bennett, who, he hoped, might be induced to accept office.

Mr. SMITH TURNER hoped so too, and had much pleasure in seconding the proposal from the chair to nominate Mr. Storer Bennett for election at the next meeting. Mr. Bennett, he said, had been a member of the British Dental Association for many years. He had had experience in conducting business meetings, and he believed he would be found a most impartial chairman. He deserved at least the consideration of being asked.

Mr. HUNT desired to add his testimony to the fitness of Mr. Bennett for the office, and he begged Mr. Bennett to allow himself to be nominated.

Mr. STORER BENNETT said that it was no feeling of false modesty on his part that prompted him to refrain from expressing a decision at the moment. For some time past his health had not been as good as he could have desired, and he would not like to accept such an onerous position as that of the chairmanship of the Board without feeling assured of his ability to fulfil his duty. He came to the meeting not knowing that the matter was to be definitely settled at once, and he begged permission, if it was not essential that an immediate decision should be made, that a little time should be given him to consider the matter. It was not that he would not, nor wished not, but that perhaps he ought not.

The PRESIDENT said that an immediate decision was not essential, and he hoped Mr. Bennett would be able to give them a reply in the affirmative.

The HON. SECRETARY read a short abstract of the proposed proceedings of the Annual General Meeting, to be held in Ipswich on May 20, 22 and 23 next. The Board approved the programme.

Other business having been transacted, the Board adjourned.

INTERNATIONAL DENTAL CONGRESS, PARIS, 1900.

LETTER FROM THE PRESIDENT OF THE BRITISH DENTAL ASSOCIATION.

Pen Villa, Yeovil, England.
March 9, 1899.

DEAR SIR,—As President of the British Dental Association I beg to thank you for your letter dated March 1, and I quite understand the accident by which your November letter was so long in reaching me.

Our Representative Board sat in London on Saturday last, March 4, and I read your letter to the members, who elected a small committee of five gentlemen to consider the requests you kindly send to the British Dental Association from the Provisional Organisation Committee of the International Dental Congress to be held in Paris in 1900, during the Universal Exhibition.

I cannot speak for the British Dental Association, because as yet there has not been time for these proposals to be placed before them. The whole body of my Association will, however, come together at their Annual Meeting on May 20, 22 and 23 next at Ipswich, Suffolk, England, when the matter will be brought before them, and the President will be able to communicate to you the results of their deliberation. Meanwhile permit me through you to thank your Committee for their kind and courteous invitation, to personally wish them every success in their undertaking, and to subscribe myself as fully reciprocating your sentiments of esteem and confraternity.

W. A. HUNT.

A M. le Dr. Sauvez, le Secretaire-Général,
17, Rue de Saint Pétersbourg,
Paris.

Metropolitan Branch.

THE Annual General Meeting of this Branch was held at 40, Leicester Square, W., on January 31, 1899, Mr. CHARLES WEST in the chair.

The SECRETARY announced that Dr. Walker, the President, owing to his usual winter cough, was prevented going out of doors in the evening, and he had desired that the meeting should be informed of his regret at not being able to be present.

The CHAIRMAN expressed his regret at the absence of Dr. Walker, which was increased by the fact that they would have to forego the pleasure of hearing his valedictory address.

At the last meeting no Auditors were elected, and the Council had to some extent rectified that omission by nominating Messrs. A. E. Baker and E. Preedy. These gentlemen had gone through the accounts, but before they could be submitted it was necessary for the meeting to confirm that appointment.

On the motion of Mr. TURPEY, seconded by Mr. H. ROSE, this was duly confirmed.

The TREASURER (Mr. Humby) read the statement of accounts.

Mr. SPOKES, in proposing the adoption of the balance sheet, said it seemed a very satisfactory one. The Branch did not need very much money, and practically the only reason they should save any was that they might spend it once each five years when the Association met in London.

Mr. LEWIS seconded the adoption of the accounts, and the resolution was carried.

The CHAIRMAN said the next, and a very important, item on the agenda was the election of a President for next year. The Council suggested that Mr. Ashley Barrett be presented for election. That gentleman had been known in this and other Societies as a very hard worker in the dental profession, and they would remember his reading a paper to them which excited an immense amount of interest and discussion. He therefore proposed, on behalf of the Council, that Mr. Ashley Barrett be the President-elect.

This was duly seconded aud carried.

The CHAIRMAN said they had also to elect four Councillors and a Secretary.

Mr. STEVENS proposed the re-election of Mr. Dolamore as Secretary. This was seconded by Mr. RUSHTON and carried.

Mr. ASHLEY BARRETT, on being officially informed of his election as President-elect, said he thanked the members most heartily for the honour they had done him. He could only say that he would do his best to carry out the traditions of his predecessors in the chair.

The CHAIRMAN announced that six nominations had been received for the four vacancies on the Council, viz., Dr. J. Walker and Messrs. H. Baldwin, Briault, Matheson, Reinhardt, and Stevens. No further names being suggested, a ballot was taken, and Messrs. Rose, junr., and A. E. Baker were appointed scrutineers. The ballot resulted in the choice of Messrs. Matheson, Baldwin, Briault and Dr. Walker.

The CHAIRMAN announced that the next business was the alteration of Bye-law 5 by the addition of two words: "Two vice-presidents." This was at Dr. Walker's suggestion, and he was sorry that gentleman was not present to advance his arguments in its favour. However, the Council had adopted it, and suggested that it be adopted by the meeting. The matter was quite open for discussion or amendment.

Mr. SPOKES proposed that, in the lamentable absence of Dr. Walker, the matter be adjourned to some future occasion. The bye-laws had answered very well in the past, and the good which the alteration would effect was not apparent to him without further instruction. He would like to know what were the functions of the Vice-Presidents. If they were only to be ornamental gentlemen he thought the Branch could get on very well without such ornaments. If no distinct reason for the change could be advanced, he was conservative enough to say that the bye-laws should be allowed to remain unaltered.

Mr. TORPEY said he understood that the Vice-Presidents would be ornamental; that no work would be expected of them. He therefore seconded Mr. Spokes' proposition, that the matter be deferred to another meeting, so that they might have time to think the matter over.

Mr. GREETHAM proposed, as an amendment, that the matter be referred back to the Council for further consideration. The matter should be discussed *in camera*, as they did not require it put into print.

Mr. HOBSON seconded Mr. Greetham's amendment.

Mr. SPOKES expressed his willingness to withdraw his proposition in favour of Mr. Greetham's amendment.

Mr. TORPEY agreed.

The SECRETARY said it would be within their recollection that at the Dinner last year Dr. Walker referred to this question; therefore it could scarcely be said that the members had had no notice of it. He thought Dr. Walker's object was to enlist the sympathies of two of their senior men on behalf of the Branch. Whether that was or was not desirable was for the members to decide. The Council acquiesced in the resolution without very much discussion. But at a subsequent meeting more difficulties had suggested themselves.

Mr. Greetham's amendment was then put and carried.

The CHAIRMAN said the next alteration suggested was in rule 15, by the addition after "annually" of the words "in rotation, and shall not be eligible for election for the ensuing year." There had been some difficulty in the selection of the members who were to retire occasionally from the Council. The rule said that one-third should retire annually. The Council consisted of twelve members, and it so happened that one year two members, in addition to the three retiring ones, were placed in the position of Secretary and President-elect respectively, necessitating the election of five new Councillors for that year. When the following year had elasped, it was found that two gentlemen would have to retire who had only served on the Council two years, and it was difficult to decide who the two should be. Eventually, without any hint as to individual attendances, it was decided to strike off the two who had attended the fewest meetings. But the position was invidious, and the proposed alteration would meet the case.

Mr. WOODRUFF asked whether there was any bye-law dealing with resignation or death, and if so, whether that would not obviate the difficulty referred to. If a secretary were appointed by the Council and someone were nominated to take his place, he (Mr. Woodruff) presumed he would only act for the remaining portion of the previous Councillor's time. The same would apply to a vacancy caused through death.

The SECRETARY thought the present and past Secretaries were somewhat to blame in this matter. When Mr. West and he were elected to the offices they now held, their successors should not have been elected by the members generally, but by the Council. But the special point which led to the alteration being suggested was that, if a member were appointed by the Council to serve out the balance of his predecessor's time, it seemed scarcely fair that at the end of, say, six months or a year he should be barred from sitting on the Council for a longer period. It said in the bye-law that "one-third of the Council shall retire annually in rotation, and shall not be eligible for re-election for the ensuing year. The vacancies thus created would be filled up by the members of the Branch at the Annual General Meeting." By omitting to mention those members who were appointed by the Council to serve the balance of the period in place of those who retired, or died, or did something else, they excepted these, and, according to the Council's view of the case, they would be eligible for re-election by the Annual Meeting.

Mr. RICHARDS said he was responsible for the words "by rotation," which to his mind simplified the matter, and he would therefore strongly support it.

The resolution to amend the bye-law was then put and carried.

CASUAL COMMUNICATION BY MR. RUSHTON.

Mr. RUSHTON : I do not know whether you are satisfied with the ordinary arm-rest, but to me it often falls very far short of what it ought to be. Those who, like myself, are fond of working with a mirror from the back of the chair find the ordinary arm-rest a very unsatisfactory thing, as it cannot be raised high enough. It is made for use on either side, but I never use an arm rest on the right side, as I find it most fatiguing. I am very fond of using an arm rest on the left side. Although with a male patient there may be no objection to using the ordinary rest, the sleeve gets very greasy. There is an objection, however, in the case of females, especially those with abundant hair. It is much better not to have to touch a lady's hair at all, much less to clasp her round the neck. Therefore I had a little arm-rest made for me by the Dental Manufacturing Company, such as I show you here, which gives every movement you need. There is an upright, which will give any reasonable height. It has a ball-and-socket joint which gives easily to any movement of the arm, but you can rest on it quite securely. There is an arrangement by which you can get any range of movement backwards and forwards. I shall be very happy to show it to anyone after the meeting. I have used it for some little time, and it seems to me to fill a long-felt want. As I have been so pleased with it I thought I would bring it to show you.

Mr. HUMBY : I think Mr. Rushton's idea is a very excellent one ; not particularly on account of the mechanical movements, as I doubt whether we want so many of them, but because it can be removed from the chair in a moment. That is a point which should be considered in an arm rest. In a case of stopping the arm rest is useful, but not in a case of extraction under gas, when it is necessary you should have entire freedom of the head rest. In some chairs they fix the arm rests so that the chairs are useless for overhead extractions, or to remove teeth out of the lower jaw.

Mr. ASHLEY BARRETT : I think it is a very important rest, and of great value to the dentist. It goes a long way towards saving that pressure upon the thorax which is so very distressing. But if I ventured to criticise Mr. Rushton's clever rest in one small detail, I would say that it gives a vertical movement and an antero-posterior movement, but, so far as I can see, there is no lateral movement ; apparently the arm must be always at the same distance from the patient's head. It seems to me the ordinary arm rest rather lacks that. It is so very short that you must always work at a certain proximity to the patient's head, and as far as I can see, it is not quite overcome in Mr. Rushton's pattern, though it may be.

Mr. RUSHTON: You can get it near the head of the patient if desired, but I find from practical experience that the present is about the right distance. You will find that, owing to the ball-and-socket arrangement, the pressure of the arm makes the pad take the easiest direction for any purpose. Still, men differ in height and length of arm, and they may require different arrangements. I think for the ordinary person this rest meets ordinary requirements.

CASUAL COMMUNICATION BY MR. SPOKES.

Mr. SPOKES: I mention a little accident which I thought might prove interesting to some gentlemen who do not mind hearing confessions. It might warn them not to be so careless as I was. One morning I got three molars in a row, as shown on this blackboard, and the trouble was in the lower second right molar, which was very much broken down on the distal side, down below the cervical margin. There were also other teeth to be removed in the upper jaw, and the patient was to have gas. Of course I began from behind the chair, and did not take the trouble, as I ought to have done, to press with the thumb upon the third molar to steady it. The result was that, in my anxiety to get this second one out so as to go round to the front of the chair and extract the teeth in the upper jaw, I hurried matters. To my surprise, though I got a good penetration with the forceps, it did not come away as easily as I thought it should do, and without stopping very much I used a little more violence and it came out, and I put it down in the forceps. Then I went round to the front of the chair and did the other operations, sent the patient to wash the mouth out, and saw the next case. On being questioned later, the first patient said he felt very comfortable, "but how about the other loose tooth?" I had no idea there was another loose tooth, but on examining his mouth I found the anterior root of the wisdom tooth was then occupying the posterior socket of the second lower molar. The explanation was quite plain. The third molar was not very fully erupted, but the root of the tooth was quite complete. It had travelled somewhat forward and slightly encroached upon the distal cavity in the second lower molar, and when I put on the extra amount of force to get rid of the second molar, I lifted *this* part of the crown up which was occupying the posterior cavity. I ought to have taken care to put some pressure upon that third molar to keep it in its place, but I did not stop to do so in my anxiety to get to the others. It illustrates the tendency to try and do too much under gas. The question was, what was to be done? I suppose some of us have seen teeth replaced into the socket after extraction by mistake, with varying results. Sometimes they settle down and behave all right; at other times, the reverse. I took an ordinary straight elevator and gently prised the anterior root of the wisdom from the socket of the posterior root of the second molar. I lifted it over the septum until the tooth got to its proper place, and then gave it a push down and sent the patient away. There was some little tenderness, and the tissues were a little congested and infiltrated for two or three days, but afterwards the tooth settled down. So far as I know—and I should know if it were different—the tooth is quite comfortable and the patient is able to use it in mastication. I perhaps ought not to have troubled you with the case, but it was an interesting little accident which had never occurred to me before, and which I do not want to occur again.

The CHAIRMAN: I do not think Mr. Spokes need apologise for bringing forward such an interesting communication. Such things have happened more or less to most of us, no doubt, but we have not always had the courage to speak about them ; but these are items which are so interesting to the Society. We shall be glad to hear of any similar experience.

Mr. REINHARDT : I saw a case the other day in which, about twenty years ago, the same thing happened to me in taking out a molar tooth. It was taken out of the socket and I put it back. That is now over twenty years ago, and the tooth is doing good service. Many years ago I had a similar accident to that related by Mr. Spokes, with the exception that it was in taking out the first molar on the left of the lower jaw. After taking the tooth out with my forceps and giving the patient a little water to wash the mouth out, he complained that he was unable to shut his mouth, mumbling that there was something in the way. On looking in the mouth then I found that the second molar was raised up very high in the mouth. I am sorry to say I did not do as Mr. Spokes did ; I put my thumb on it and jammed it down ; the patient closed his jaw, and I sent him away. He came back in a week with the tooth quite comfortable. I presume it got all right, for I never saw him again.

Mr. DUMAYNE : I had a similar accident with a bicuspid. Under gas I took out a stump wedged between the second bicuspid and the molar, and I brought out the first bicuspid as well. This I put back again, and no disastrous results ensued. I saw the patient a short time afterwards, when the tooth was rather loose, and I warned him to be careful, but there was no further trouble.

Mr. SPOKES, in reply, said : With regard to what Mr. Gill said, I might have washed out the second molar socket and transplanted the third molar into it, but I was quite content to prise back the anterior root and leave it in its proper socket. The tooth, as I have said, is quite comfortable, and the gentleman knows all about it. He is a medical student, and has taken as much interest in the extraction as I have done. He has promised to report to me if anything goes wrong. I have seen teeth extracted by mistake. I remember seeing a student take out the wrong lower molar, which was thrown upon the floor, and the mistake being discovered after the patient came out of the gas anæsthesia, gas was re-adminstered, the tooth picked up and inserted and there was no further trouble. That raises the very interesting point as to how the tooth settles down again. The vascular circulation can no doubt easily be re-established, but how do the little nerve-fibrils get united up again? These teeth are found sensitive to irritation at a future time.

There is one other thing. Nitrate of silver is resorted to for all manner of things, and frequently pieces of stick or vulcanite are dipped into a solution of nitrate of silver. But we want something with which to apply the solid form more or less accurately to little out-of-the-way spots in the cervical cavities. We are told it is easy to fuse nitrate of silver on the end of a silver probe, but the ordinary silver probe will not keep it. Mr. Ord was good enough to investigate the matter, and procured a piece of pure silver wire ; this is fixed by a screw into a handle. When it is not wanted it is reversed and can be carried in the pocket. Nitrate of silver is useful for children's teeth. When one cannot do anything else with sensitive teeth it is good practice to rub the caries well over with nitrate of silver, and even in sensitive cavities in adults. Nitrate of silver does not stain the teeth ; it makes a dense, hard, black surface, which can be cut away, and the tissue underneath is found not to be stained. Therefore it can even be used temporarily in teeth in the front of the mouth.

I tried it once in the case of a girl in a parochial school who had two beautifully symmetrical spots of caries in the two central incisors. It was not possible to do anything more to them, but I took up a solid stick of nitrate of silver and rubbed it into these two spots. I did not expect I should see her again, but I did, and found it had stopped the decay, and made a dense, hard surface. I managed to see the girl later and cut these cavities well out. I found I could get a clean surface, but the great difficulty was to get the enamel edges free. It seemed that the enamel margin was stained more than the dentine was. I daresay other gentlemen have had similar experiences.

Mr. STEVENS: I have frequently used a small loop of platinum wire bent round; that seems to hold the nitrate of silver in any position; and the platinum wire can, of course, be bent in any direction.

Mr. GOADBY: The staining of the enamel is rather what one might expect with silver nitrate, because round the edge of such a cavity at any rate, whichever theory you accept of the microscopical structure of enamel, you have got some interstitial substance between the enamel prisms softer than these, and which is washed away by the action of the acids. Probably silver nitrate is deposited between the enamel prisms, similar to that occurring with Golgi's gold stain. It was this which led Bödecker to think he had found protoplasm. As regards the nerve of the replaced tooth becoming sensitive again, I think it is quite possible. Of course, I am only advancing a theory; but if you put a tooth back again it fits its socket accurately, and the parts are more or less centred on their old positions. It is a well-known fact that even after a myeline sheath is degenerated the nerve fibril grows from the centre downwards. It is found in operations on stumps that nerve fibrils grow forming the small bundle, which causes one form of painful stump. The growth of these nerve fibrils takes place in a circular fashion, so it is quite possible that the central end of the growing nerve-fibre may find its way back again into the root canal, where there is an old sheath for it to run into.

Mr. GILL: Some sixteen years ago I had an accident brought to me which resulted in five of the front teeth being driven up like nails into the head. The girl had fallen from some very high steps, and had alighted on her face. We thought at first she had lost the teeth, but after a good deal of trouble I found and replaced them. Nearly eleven years afterwards I saw her again, and of these five teeth four were of absolutely good colour, and the fifth was only slightly discoloured. The four responded readily to thermal changes, there being no suspicion of their previous removal. I think this shows that the circulation and the nerve-cell connection must have become restored. I should hardly expect those teeth to remain such a good colour and to respond to thermal changes if only the periosteum had become re-united. Moreover, they would not have had the natural appearance when viewed by transmitted light. I am only too pleased to hear Mr. Spokes speak so well of the nitrate of silver treatment. I have used it for a long time for young children who have neglected to clean their teeth, and where there is an accumulation of bread stuffs, producing that white milky appearance round the neck of the tooth which we know is almost certain to result in decay. I invariably treat these with nitrate of silver, and it is very rare that this does not stop the progress of the decay.

Mr. HUMBY: I have found a considerable staining arising from the use of nitrate of silver. Mr. Spokes admits that nitrate of silver stains the enamel.

The tissue that it did not touch was the dentine. If the nitrate of silver is allowed to go into contact with an excavated surface it stains the dentine as well. That happens to be my experience, and I have seen many cases of staining through its use. If you put a point of nitrate of silver into a cavity which you are afraid to excavate you touch the enamel, not the dentine. It would have to penetrate the entire thickness of softened dentine before it arrived at the true dentine. If it arrives at the hard dentine you will find it will stain. I have found that nitrate of silver does not injure steel instruments. The steel instruments we use in our practice are of almost infinite form, and you can pick up whichever of these suits the case, dip it into finely-powdered chloride of silver, and then apply the nitrate of silver to that spot, and the effect is then limited to the spot.

Mr. COYSH : It is quite true that nitrate of silver, *if pure*, will not tarnish steel instruments, but it is very advisable to wash the material off immediately, or your instruments will be as bad as if left in contact with acid. As a matter of experience, we do not get pure nitrate of silver.

Mr. HUMBY : Yes, it may be that steel instruments so used have been immediately cleaned in the ordinary course.

Mr. DOLAMORE : In a French dental journal I came across a method specially recommended for treating children's decayed teeth. In private practice we might not use it frequently, but in hospital practice it has proved very valuable. Take some powdered nitrate of silver, place in the cavity and burnish it well in with water; over this place some ordinary salt and again burnish. The nitrate of silver is turned into the insoluble chloride. The results have been good, and it has the further advantage that the child's tongue, &c., are not burned, the chloride being insoluble and therefore not an irritant.

Mr. GILL : I would like to supplement my remarks. Mr. Humby speaks about nitrate of silver staining. After sixteen or seventeen years' use I cannot agree with him. I think he applies nitrate of silver at the same sitting as the filling ; if so he may get staining. But if he applies the silver nitrate a day or two before, allows it time to act, and then removes the whole of the stained material, I do not think he can possibly get any staining subsequent to it. I use nitrate of silver day after day, and have done so for these many years, and I have not had one case of staining when I have cleared away the previously stained material before filling.

Mr. HUMBY : I can make the matter clear.. I have not used nitrate of silver to procure insensibility, but to prevent the tendency to weep of those small portions of the gum between the teeth. In these cases the teeth have been permanently stained.

Mr. SPOKES : I have rubbed the nitrate of silver as hard into the bottom of the cavity as I knew how, not only through the softened piece, but have even removed the soft piece to rub in the nitrate of silver so as to stop decay. I have had the opportunity of cutting that out months afterwards and have come upon dentine which is absolutely free from staining.

Mr. RUSHTON : I think we ought to be clear as to what the word "stain" means. Copper amalgam stains the whole tooth a grey or greenish colour. My experience in the use of nitrate of silver is that there is a sharp line of demarcation between the stained and the non-stained tissues.

Mr. W. H. G. BAKER exhibited some new hand-burnishers which he had designed with a bent shank to reach fillings on the palatal surface of teeth.

The **CHAIRMAN** thanked, on behalf of the members, Messrs. Rushton, Spokes, and Baker for their kind contributions; also those who had joined in the discussion. Owing to the late hour, Mr. Coysh had consented to adjourn the opening of the discussion on the Treatment of Pulps.

The Chairman then delivered his Presidential address (published as an Orginal Communication).

Mr. **RICHARDS** proposed a vote of thanks to the retiring President, Dr. Walker, with whom he wished to include the Secretary (Mr. Dolamore) and the Treasurer (Mr. Humby).

This was seconded by Mr. **BATEMAN** and carried by acclamation, the President paying a high tribute to Dr. Walker and the other gentlemen concerned. Messrs. Dolamore and Humby replied.

On the motion of Mr. **MATHESON**, the President was thanked for the address which he had just delivered.

The President having returned thanks the meeting adjourned.

Midland Counties Branch.

A MOST successful and enjoyable meeting of this Branch was held on Saturday, February 25, at Blackpool.

There was a large and representative gathering of the leading members from all parts of the district. Several members availed themselves of the opportunity to stay over the week-end and enjoy the attractions of this progressive watering place.

The Council met during the afternoon for the transaction of business. In the evening the general meeting was held, and an interesting paper by Mr. W. J. Pidgeon on "Work and Play" was read, which gave rise to an interesting discussion. Other papers and communications were contributed by Messrs. Renshaw, Brunton, Gaddes, Harding, D. Headridge, D. Parsons, &c. A vote of thanks to the readers of papers concluded the meeting.

The Annual Meeting of this Branch will be held at Manchester on Friday and Saturday, April 14 and 15, 1899.

PROVISIONAL PROGRAMME.

Thursday, April 13.

3.30 p.m.—Meeting of the Council at the Grand Hotel.

7.30 p.m.—A Reception in the Manchester Museum Buildings, Owens College.

Friday, April 14.

10 a.m.—Annual General Meeting in the Owens College Medical School. Presidential Addresses.

1 p.m.—The President (Mr. G. G. Campion) will entertain the members and friends to lunch.

2.30 p.m.—Casual Communications and papers.

7 p.m.—Annual Dinner at the Grand Hotel.

Saturday, April 15.

9.30 a.m.—Demonstration at Owens College.

2.30 p.m.—Reception at the Botanical Gardens.

A large attendance of members is hoped for. Special arrangements are being made for the entertainment of the ladies during the meeting.

Members having any subject of interest to bring forward will greatly oblige by letting me know at their earliest convenience.

Gentlemen wishing to become members are reminded that notice must be sent to me at least one week before the meeting.

THOS. EDWARD KING,
10, *Museum Street*, *York*. *Hon. Secretary.*

Central Counties Branch.

A MEETING of the Central Counties Branch will be held on Thursday, March 23, at the Medical Institute, Birmingham, when papers will be read by Mr. F. W. Richards, L.D.S.Eng., on "Gutta Percha Fillings," and Mr. H. Percy Joscelyne, L.D.S.Eng., "Some Sequelæ of Alveolar Abscess." The Council will meet at 5.30 o'clock.

An account of the previous meeting is unavoidably held over until the next issue of this Journal.

83, *Edmund Street*, A. T. HILDER,
Birmingham. *Hon. Sec.*

The Secretary of the Central Counties Branch asks us to state that the name of Mr. J. D. Whittles was accidentally left out of the list of members of the Branch and of its Council in the lists just published.

Western Counties Branch.

A MEETING of the Council will be held at the "Choughs" Hotel, Yeovil, on the third Saturday in April. Afterwards an informal meeting of members will be held.

Will members kindly notify to the Hon. Sec. any communications they may have to bring forward?

6, *Southernhay*, T. ARTHUR GOARD,
Exeter. *Hon. Sec.*

Reports of Societies and other Meetings.

The Odontological Society of Great Britain.

THE ordinary monthly meeting of this Society was held at the Dental Hospital, Leicester Square, on Monday, March 6, Mr. JOHN FAIRBANK President, in the chair. There was a large attendance of members.

Mr. Edwin William Harwood signed the obligation book and was formally admitted to membership, and the following gentlemen were balloted for and elected :—Messrs. M. A. Carpenter Harris (Harley Street); John Harper (Cape Town); A. L. Goadby (Reading); Walter Floyd (Catford); and Robert H. Manning (Wimpole Street).

The LIBRARIAN reported the receipt, in addition to the usual exchanges and periodicals, of "Papers on Dermatology," second edition, by Dr. Mapother, and the "Proceedings of the Dutch Dental Society" for 1898.

CASUAL COMMUNICATIONS.

Mr. **ASHLEY BARRETT** brought before the notice of the members a case of an impacted third lower molar. The patient, aged 20, had suffered for several weeks, and the interest of the case lay partly in the variety and measures advised, as likely to give relief, by four practitioners. From a lantern slide exhibited it was noticed that the upper right first bicuspid and the upper right first molar were absent. The upper right second and third molars were present, but the latter bit down upon the lower gum behind the lower right second molar In the lower jaw all the teeth were present save the third molar, of which one cusp could just be detected deep down behind the lower right second molar. The patient consulted A, who advised extraction of the lower right third molar with the aid of ether. B advised the extraction of the lower right second molar, while C advised dissecting off over the buried lower right third molar a triangular flap of gum. The patient was then seen by D, who advised the removal of the upper right third molar. This was done with the aid of gas, and immediate relief was given to the patient. The result seemed to have justified the treatment, and it was interesting to see from the models that the lower wisdom tooth was rapidly erupting and assuming a more vertical position now that the bite was relieved by the removal of the upper third molar.

Mr. **R. H. WOODHOUSE** suggested that as a little trouble seemed to have arisen from the pressure on the lower gum, the taking off of the sharp cusps of the upper wisdom tooth might have relieved the irritation, and so saved the tooth.

Mr. **S. A. T. COXON** exhibited the teeth mentioned by him at the last meeting, through which holes ran transversely. There were also platinum sockets, as in tube teeth.

Mr. **F. T. PAUL**, F.R.C.S., read a long paper as a "Contribution to the Histological Study of Dentine," the object of his research being to trace in detail the development of the matrix of hard non-vascular dentine. The material used for the purpose was chiefly the tooth germs of man, ox, sheep, and pig, and to a less extent those of monkey, dog, rat and cat. Weak "Fleming" was employed for fixation, nitric acid and spirit for decalcification, Ehrlich's logwood, eosin, and dyes of the nature of nigrosin for staining. The tooth pulp, he said, was generally described as a mucous connective tissue, consisting of branched cells surrounded by a transparent basal substance rendered somewhat granular by numerous cell processes seen in transverse section. Fibres, apart from those in connection with the larger vessels and nerve bundles, were said not to exist except in the form of cell processes. That statement seemed to him to be absolutely incorrect. The demonstration of a complete fibrous basis throughout the pulp was chiefly a question of staining. The recognition of the fibrous evolution on the part of the pulp cells was essential for the appreciation of the subsequent developmental changes. As the pulp cells developed their nuclei were passing on to a resting stage, becoming small and narrow and showing less structure, whilst their fibres were increasing. Their object was not to become odontoblasts, but to produce the fibrous basis in which the first layer of dentine was deposited. The next step in the direction of calcification was the appearance of large oval nuclei, at short distances from each other, amongst the surface layer of pulp cells, and those nuclei were the first recognisable condition of the odontoblasts. Young odontoblasts had the appearance of rapidly growing cells. They did not all extend quite to the surface of the pulp, as before attaining that point some became functional and secreted calcoglobulin, which was first deposited amongst the superficial pulp fibres amongst which they originated; that was the first formed dentine matrix, and was as clearly and definitely laid down in pre-existing connective tissue fibres as was the case with bone matrix. The penetrating fibres in dentine were first described by Mummery, but Mr. Paul's own observations tended to show that penetrating fibres played but a small part in the continuation of the process.

Discussing the process by which the dentine matrix is formed, with its commencement in the superficial pulp fibres, Mr. Paul said that when the matrix had attained a depth of about $\frac{1}{100}$th of an inch, the penetrating fibres began to shrink and disappear, and ceased to take any important part in the process. It was evident that odontoblasts must lessen in number as the building in process progressed. At the border line between the odontoblast and the dentine matrix, but nearly always adhering to the former, each cell presented an appearance as though it possessed a shoulder or collar, differing in several features from the rest of its structures. The shoulder or collar seemed to be a transitional stage between formed and unformed matrix, and if so, it was of the utmost importance in tracing the process. Odontoblasts only touched each other in the collar region. If the section was very thin, overlapping odontoblasts seemed to form a continuous layer, as drawn by most authorities; but in very thin sections, when selective stains had been well used, not only were the odontoblasts well removed from each other—except at the collar—but the pulp matrix was traced in between them as very delicate interlacing fibres by which they became thoroughly invested. In any very thin and well stained sections blood vessels might be seen amongst the odontoblasts, and nothing proved more surely that those cells insinuated themselves amongst the pulp tissues. In his preparations the collars of the cells had separated from the matrix, whilst the dentinal fibres remained in contact. Occasionally, however, the collars remained in contact with the matrix, a point of some importance. He was persuaded that a true interpretation of the cell collar was the crux of the whole process. It was evidently the transitional condition between soft tissue and hard matrix. The question was: Did that transitional tissue belong to the cell or to the pulp matrix? It seemed to him that the transitional tissue was derived from the pulp matrix and not from the odontoblasts, and that dentine matrix was a secretion by these cells upon a fibrous basis derived from the connective tissue cells of the pulp. In his judgment the balance of evidence was very strongly in favour of the view that the transitional tissue was derived from the pulp matrix, that it corresponded with the membranous structure seen at an earlier stage on the surface, and really consisted of a delicate network of pulp fibrils woven about the necks of the odontoblasts upon which the secretion of the latter was poured and solidified to form the dentine matrix. In concluding his observations Mr. Paul summarised the main points of his paper as follows:—

(1) To obtain good results special fixatives, very thin and carefully decalcified sections, and differential stains must be employed.

(2) It can be shown that the intercellular substance of the pulp is filled with delicate fibres of the gelatin-yielding class, which are derived from the cells.

(3) The first layer of cells formed on the surface of the pulp beneath the ameloblasts are not odontoblasts, but develop into fibres, and on the actual surface these fibres blend together and form a membrane which lies just beneath the ameloblasts.

(4) The odontoblasts appear later between these surface pulp cells, after they have fibrillated and their nuclei have assumed the resting stage.

(5) The first formed dentine matrix is due to the secretion of young odontoblasts upon the fibres of the surface pulp cells, and has the general characters and much of the appearance of osteogenetic fibres.

(6) In the subsequent process the penetrating fibres almost disappear. This later stage is comparable with the building-in of Haversian canals, not with the periosteal outgrowth of bone.

(7) The odontoblasts are very long and rather narrow cells. The nucleus is usually situated near the lower end, but may be quite at the top ; or there may be two nuclei, the uppermost being sometimes degenerated. The lower four-fifths of the cell substance is coarsely granular, the upper fifth is generally clearer and more homogeneous. Only one definite protoplasmic process can be discerned, the dentinal fibre, which, in transverse and sometimes in longitudinal section, appears as a distinct substance in the upper part of the cell.

(8) Between the odontoblasts there is always a layer of fibrillar tissue derived from the pulp matrix. Vessels are frequently to be seen in this intercellular tissue amongst the odontoblasts.

(9) At the upper margin of each odontoblast, where it is in contact with the dentine matrix, is a thin layer of transitional tissue. There are good reasons for believing that this structure does not belong to the odontoblasts, but is derived from the fibres of the pulp matrix passing up between them, and corresponds with the basement-like membrane derived from the original surface pulp cells, and situated between the pulp and the ameloblasts.

(10) The process by which dentine matrix is formed after the initial stage is one of secretion by the odontoblasts upon this layer of pulp fibres investing the necks of the odontoblasts.

(11) In all essentials bone and dentine matrix are developed on similar lines.

(12) The conclusions arrived at are broadly the same as those proposed by Mummery, but the descriptive details relative to the various steps of the processes are entirely due to original work.

Mr. MUMMERY said the paper was a very interesting one to him because it was a corroboration of the connective tissue view of the formation of dentine promulgated by himself in 1891. His argument in his paper then was that the dentine was deposited in a fine connective tissue stroma derived from pulp. With regard to the comparison with bone formation, Von Ebner had drawn attention to the matter long ago. There was no doubt that blood-vessels were continually seen in the odontoblasts, and he had shown on the screen years ago specimens where the blood-vessels were seen close up to the dentine.

Mr. TOMES thought the members would agree that the paper added a very material number of facts to their knowledge of dentine formation. It confirmed in the main Mr. Mummery's idea that in dentine formation a prior formation of connective tissue could be traced, and that it was in the connective tissue that the dentine matrix originated. Mr. Paul contended all through that the dentine matrix was formed by the fibrillar connective tissue which existed between the odontoblasts, and not by the odontoblasts. Therefore he failed to follow him when he drew a distinction between the first formation of dentine and the later formation. It appeared to him that the arguments and specimens proved rather that it was essentially one and the same process.

Mr. HOPEWELL SMITH said that in some sections of fully completed dentine and pulp that he had in his possession, at the apical foramen of the pulp he had come across in several instances non-tubular dentine, with short spaces where no odontoblasts existed ; and he wished to know how the matrix was produced in that instance. Another thing he could not understand was how the question of pain was to be considered if the theory was accepted that the matrix of dentine was formed by the odontoblasts. He also asked for a little further information as to the nerve terminals.

Mr. KENNETH GOADBY asked the author whether he believed in the Newmann sheaths, and if so, what part of the reticulated basement membrane or fibrillated basement membrane the sheaths were composed of.

Mr. F. J. BENNETT drew attention to the fact that in the current number of THE JOURNAL OF THE BRITISH DENTAL ASSOCIATION there was a paper by Dr. Röse which tallied very much with Mr. Paul's and Mr. Mummery's views.

Mr. LEON WILLIAMS considered the paper to be a most important contribution to the subject of the formation of dentine, and one which, coming after Mr. Mummery's paper, and largely confirming it, had cleared up a great many points which had been very obscure. He thought that it was necessary to give the paper careful study before entering into any criticism of it.

Mr. STORER BENNETT thought it was a source of gratification to find that the paper confirmed the investigations which Mr. Mummery placed before the Society in 1891.

Mr. F. T. PAUL having briefly replied, the PRESIDENT conveyed the thanks of the meeting to Mr. Ashley Barrett and Mr. Paul, and adjourned the meeting to April 10.

Reviews and Notices of Books.

HYGIÈNE ET THÉRAPEUTIQUE DES MALADIES DE LA BOUCHE.

Par le Dr. CRUET ; precédé d'une Préface par le Prof. Lannelongue. *Paris:* Masson et Cie.

IN this little book Dr. Cruet has conscientiously endeavoured to describe almost, if not quite, every affection and abnormality of the mouth and teeth; everything is brief and concise, and yet nothing seems to have been omitted. The first part of the book is devoted to the anatomy and physiology of the mouth, and consists, in its fifty pages, of a *résumé* of the oral tissues and their functions. In a book of this nature, written, as it seems to have been, chiefly as an aid to the general practitioner, we do not expect to find a minute description of the dental tissues, but the author has apparently left nothing out which could be of practical value to the surgeon, and he seems to have arrived at this result by a process of elimination, catering for the practitioner rather than for the student.

The second part, "Pathology," is equally well done; the various diseases of the buccal mucous membrane, gums, boundaries of the mouth and of the jaws are all briefly described under sub-headings, together with their pathology and appropriate treatment. Dental irregularities are treated of in a racy chapter of some forty pages, in which Dr. Cruet gives a short account of the surgical and mechanical methods of correction.

The third part describes operations on the mouth and teeth, including a chapter on anæsthesia, general and local. The fourth part is devoted to "General Hygiene and Therapeutics of the Mouth," a chapter each being given to individual and collective hygiene, the latter sub-divided into "Scholastic" and "Military." The book is no less interesting than instructive, and is an excellent example of thoughtful condensation.

ANATOMY AND HISTOLOGY OF THE MOUTH AND TEETH. By T. NORMAN BROOMELL, D.D.S., Professor of Dental Anatomy, Dental Histology and Prosthetic Technics in the Pennsylvania College of Dental Surgery, Philadelphia. With 284 illustrations. *Philadelphia:* P. Blakiston, Son & Co., 1012, Walnut Street.

This book is undoubtedly a useful addition to dental literature. As a systematic description of "those parts of human anatomy which come directly under the care of the stomatologist," it adequately fulfils its purpose.

In the earlier chapters, strictly anatomical, the author does not claim originality other than in the arrangement, but he deserves high compliment for the effectual and artistic manner in which this is carried out. Although here, as in most works hailing from the States, we come across terms foreign to our ears, together with, to us, quaint methods of spelling certain words, the description of the parts is good and thorough, and the accompanying photographs are excellent.

The histological portion is equally indicative of the pains the author has taken to carry out his work in a conscientious and artistic spirit. The pages abound in micro-photographs, for the majority of which originality is claimed, though others are after Leon Williams, Geise and Mummery, and obligations are acknowledged to the works of Tomes, Black, Morris, Stöhr, Klein, and Stricker.

NOTES ON DENTAL ANATOMY. By DOUGLAS GABELL. For use in conjunction with Tomes' "Dental Anatomy," the South Kensington Museum, and personal instruction. *London:* John Bale, Sons & Danielsson, Ltd., Oxford House, 83-89, Great Titchfield Street, W.

Mr. Gabell has given the student the best possible form of cram-book—a summary of all the knowledge he can have acquired from the three sources mentioned on the title-page. He does not startle the student with new and appalling facts, but he puts before him in a concise and clear form all the details with which he may have become acquainted in his wanderings through the South Kensington Museum, in his perusal of Tomes' "Dental Anatomy," and at his lectures and classes. At the outset dental anatomy is a great puzzle, and the student has hitherto sought out the pieces for himself, and put them together as well as he was able ; but here he has the pieces all set in their proper order, each one distinct and easily recognisable, the whole forming a map in relation to which the other sources of information, mentioned above, are the geographical text. The book is so redolent of the author and his excellent methods of instruction that one might almost say he has had himself bound in book form and given himself to the student. As a proof of the popularity of the work, we understand that it is already out of print.

Miscellanea.

The Dental Hospital of London.

The Annual General Meeting of Governors is announced to be held at the Hospital on Friday, March 17, at half-past five o'clock, Mr. Alderman and Sheriff Alliston in the chair, to receive the Annual Report, and elect the Committee of Management, the Treasurer, and Auditors for the ensuing year.

A Charge of Malpraxis.

The *Western Daily Press* reports a case in which a patient sued a dentist (a member of the British Dental Association, a gentleman of repute) and a medical practitioner for negligence or breach of duty, and in the alternative, for assault, in connection with an operation for extraction of teeth under ether. The questions which arose were whether the dentist had obtained the patient's authority to do what was necessary, or to extract only three teeth, and whether there was want of care or skill on the part of both defendents in performing the operation. The chief trouble seems to have arisen through the patient eating a chop for breakfast, previous to the administration of ether. Our sympathies are with both dentist and anæsthetist in the inconvenience and publicity necessarily attendant on a matter of this nature, for though the defendants were easily able to disprove the charges, and a verdict was given in their favour, yet as our contemporary, *The Medical Press*, observes, "This is sorry compensation for all the worry and trouble of defending an action-at-law, and the flimsy nature of the allegations can only exasperate the feeling of resentment." Complaints of this kind are not uncommon, though frequently groundless, and they illustrate the necessity for arriving at a definite understanding between patient and practitioner before any operation is undertaken.

Royal College of Surgeons in Ireland.

Dental Examination.

The following gentlemen having passed the necessary examination, have been admitted Licentiates in Dental Surgery of the College :— Mr. A. T. Green (Belper, Derbyshire) and Mr. D. Saville (Leeds).

Benevolent Fund.

The following new subscriptions and donations were received during February :—

New Subscriptions.

	£	s.	d.
Pearse, John, Hope House, Tunbridge Wells	£1	1	0
Spurr, Alfred P., Town Hall Square, Grimsby	0	10	6
Ranken, John G., 14, Grange Crescent, Sunderland (per W. G. Routledge, Local Representative)	0	10	6
Tasker, G. B., 7, Colebrooke Row, Islington (Subscriptions for 1896, 97, 98, 99)	4	4	0

Donations.

	£	s.	d.
Matheson, L., 22, Wimpole Street, W. (with promise to raise his subscription to £3 3s. next year)	1	1	0
Southern Counties Branch, B.D.A. (collection January 28, 1899, per F. V. Richardson)	3	7	6
"Anon., Lancs."...	0	7	6

National Dental Institute of Ireland.

We have received from Mr. O'Duffy, the Hon. Secretary of this Institution, the report of the fourteenth year of its existence. Want of space prevents us from publishing the report *in toto*, but the Institute has our sympathy in lamenting the fact that "the great mass of the people are deplorably ignorant of the national importance of preserving the teeth." Speaking of the great facility afforded by the Institute, to persons of limited means, of obtaining the services of a fully qualified dentist at any hour of the day, it is deplored that the people only avail themselves of it "in order to secure speedy relief from their agony" by extraction of teeth, whereas the advantages to be derived from other branches of dental surgery are, it appears, unappreciated.

Carbolic Acid Soloids.

Messrs. Burroughs and Wellcome's preparations are pretty well known to the medical profession as being as neat and portable as preparations can be. Convenience is studied in every possible manner in their preparations. It may therefore be welcome news to those of us who are often employing carbolic acid in varying forms of dilution, to know that these soloids will enable the surgeon to make his own 1 in 40 or 1 in 20, or whatever strength he may require, without further apparatus than some distilled water.

National Dental Hospital Smoking Concert.

A Smoking Concert was held in connection with the National Dental Hospital on the evening of February 25, Mr. Sidney Spokes taking the chair. There was a large attendance, including many visitors from other hospitals. A long and successful programme was contributed to by such favourites as Frank Hook, Wallis Arthur, W. G. Churcher and Fred Russell, together with a host of local and other talent, all combining to provide a most agreeable entertainment.

Books and Publications Received.

REMINISCENCES OF A EUROPEAN TRIP TO THE INTERNATIONAL MEDICAL CONGRESS AT MOSCOW, RUSSIA, August 9 to 26, 1897, as a Delegate from the American Medical Association and the Odontological Society of Pennsylvania, and of Clinics and Lectures given in Leipzic, Berlin, St. Petersburg, Copenhagen, Stockholm, Hamburg, Bremen, Amsterdam, Paris and London. By W. G. A. Bonwill, D.D.S. *Philadelphia:* Reprinted from the "International Dental Journal," Oct., Nov. and Dec., 1898.

REPORT OF THE INCORPORATED EDINBURGH DENTAL HOSPITAL AND SCHOOL, 31, Chambers Street, for 1898.

The Book and News Trade Gazette and Newsagents' Chronicle, Δεσμος, Warrington Guardian, Odontologisk Tidskrift, Transactions of the Odontological Society of Great Britain, Transactions of the Students' Society of the Dental Hospital of London, Report of the National Dental Institute of Ireland, Invention, Information.

Letters and other Communications received from:

W. Pearse; Julius Weiss; C. S. Leadbetter; F. V. Fisher.

Appointment.

MR. WILLIAM FISK to be Dental Surgeon to the Bushey Heath District Hospital.

NOTE.—ANONYMOUS Letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 26, Wimpole Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

Subscriptions to the Benevolent Fund to the Treasurer, A. J. Woodhouse, Esq., 1, Hanover Square, W.

All contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 26, Wimpole Street, W.

Journal of the
British Dental Association

No. 4. APRIL 15, 1899. VOL. XX.

Original Communications.

The Title Dentist.[1]

BY DAVID HEADRIDGE, L.D.S.R.C.S.ENG.

THE poet who penned the line "What's in a name?" had little conception that with the changes wrought of time a *name* would form a veritable briar bush for legal controversy; that case after case should be argued to demonstrate its value, and that the highest courts of the country would be involved in its consideration. Perhaps it is due to the scientific training of the age that we are becoming so punctilious! However, be that as it may, we as a profession are entitled to an individual appellation which it is our duty to make distinguishable as well as distinguished by all means in our power. For such a title has a value proportionate to its importance as a means of identification, what we may be pardoned in calling a "commercial value," one assessed high by the medical profession when they insist on the careful differentiation of such titles as "doctor," "surgeon," "physician," &c.

Now, whilst it will be my endeavour to consider our title from this aspect, and for the present ignore the important subjects, "the means of attaining such a title as that of 'Dentist,'" or the duty the possessor owes to himself, his profession and the public—all themes worthy of our attention—yet we must not lose sight of the reasons that permit our use of the title. And for this purpose I cannot do better than quote the preamble of our Act, which reads,

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[1] Read at the Midland Counties Branch Meeting held at Blackpool, February 25, 1899.

"Whereas it is expedient that provision be made for the registration of persons specially qualified to practise dentistry in the United Kingdom" (the Dentists Act, 1878), which statement I am sure conveys the impression that it was as much to protect the public as the profession that our legislators felt justified in sanctioning its enactment. That being granted, it is quite unnecessary to review the magnificent work that preceded and culminated in the passing of this Act. The history of the Dental Reform movement has been already well told. But this Act did something more: however many its shortcomings may be, it gave to the public an index as to who were the persons so qualified, for it allowed those registered a right to use certain titles denoting their profession. Similar rights are granted to the medical, legal, and several other professions. In passing, let me comment that such an index has at once a certain value, it is the creation of a "goodwill," and it is for us to see that we increase its worth.

Now, though a "registered person may call himself by any title which he prefers to adopt denoting his right to practise medicine, surgery and midwifery, provided that he does not directly or indirectly assume a title conferred by another licensing body or university to which he is not entitled"[1]—a rule which, I take it, would hold good in our profession—I think it is a misfortune both for public and professional reasons that we make "confusion more confounded" by adopting several titles denoting our profession, instead of amplifying the value one common title would possess. Is this because the "fair name," which might and which ought to be our sole requirement, has been besmirched, or is it that some believe "a double barrelled gun" (to use a slang phrase) is the better for firing with? At all events, even now we have two titles that are more or less prominently before the public, others have been "lost to sight," as "dentologist" (1760[2]), others of recent suggestion are perhaps not likely to become current, as "stomatologist" (1898[3]).

But I would like to fix your attention on the two titles "Dentist" (1759[2]), and "Dental Surgeon or Surgeon Dentist" (1808[2]); to use either or both we are entitled.[4] For our indiscriminate use of these titles leads to ambiguity not only in the public but even in the professional mind. Would it not be well that we once and for all grasped this nettle and determined the title we recommended for universal adoption. By so doing I am sure we would render a public boon, and one that would react to our advantage. For a public already confused by the use of such titles as dental surgeon and dentist will be less likely to appreciate the distinction between these and the numerous other titles charlatanism parades—"Dentorium," "Dental Institute" and the like—whereby it tries to evade the letter as well as the spirit of the Act; fortunately even these titles are distinctly illegal,[1] and our central authority will, I take it, insist upon their suppression. Yet how much better would it be if the public realised that there was but one title by which those "specially qualified" could be readily distinguished. Gradually, through many long years of education, the public are beginning to appreciate the services conservative dentistry can render. Are we to throw these labours away by this lack of definition as to those qualified, and let them walk in unawares to the most blatant quack? That the public do to a degree recognise the title "Dentist" as one qualified is a fact realised by the unregistered fraternity. Not only does this reveal its commercial value, but it should make us the more determined to force it into sharper demarcation. Yet what do we find? Flagrant abuse of the title! Amidst some 211 names styled in the Directories or elsewhere in Manchester and its neighbourhood, 59 at the least are unregistered, one so qualifying himself, and a few others add in brackets "artificial teeth makers."[2] Or we see advertisements galore where the word "dentist" is more or less insidiously brought in, as this advertisement:

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[1] See *British Medical Journal*, February 4, 1894.

[2] Murray's English Dictionary.

[3] *Cosmos*, 1898, p. 269.

[4] JOURNAL OF THE BRITISH DENTAL ASSOCIATION, 1898, p. 510.

Exors. o
Mr. ———,
Dentist by examination;

or another where the work done "is equal to that of any other dentist," or where again use is made of the word dentist by persons questionably covered. Surely these cases are sufficient to suggest the enforcement of a remedy.

I have already said that our Parliament granted our Act as much to protect the public as the profession, and I take it that it is for the same reason the medical profession are so exacting in the observance of the law relating to titles, as the recent case of Hunter *v.* Clare testifies, wherein the Society of Apothecaries[3] had to prosecute the right for their licentiates to use the title "physician," and the widespread interest the case has created should make us careful over our title.

Now whilst our Act, purposely or otherwise, fails to define the title we should use, it clearly states that persons not registered shall be debarred from using certain titles, or any that might lead the public to suppose they were "specially qualified" (Clause 3), but for us it simply says "a person registered under this Act shall be entitled to practise dentistry or dental surgery" (Clause 5). Yet on the other hand it is called the "Dentists Act," and is for the registration of persons "to practise as dentists," which, I take it, is a clear indication of the title most desirable for us to use, although the Registrar is restrained from advising on this question. Neither does the possession of a diploma help its solution, as it confers no specific title.

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[1] JOURNAL OF THE BRITISH DENTAL ASSOCIATION, 1894, p. 425.

[2] October, 1898.

[3] *British Medical Journal*, January 28 and February 4, 1899.

This very question of title raised considerable discussion at the meeting of the General Medical Council in May, 1898, and it is worth while to carefully peruse the July number of our Journal for its report thereon, as certain members had very definite ideas on the question, and it needed the opportune presence of our representative, Mr. Tomes, to show conclusively that their views were untenable. Not only does this chaos manifest itself in the Medical Council, but likewise in the medical profession, who have preconceived notions of differential value, and also in the lay mind, even amongst ourselves. Both for professional and personal reasons (ethically and socially), would it not be an immense advantage to use but one title? As I have said, we ourselves intensify this confusion by adopting different titles, not only personally, but worse, in the dental press, and still more so in the description of our public appointments. Let us once and for all eradicate this ambiguity, and having resolved on a title, increase its value all we can by concentrating attention on *one* title, in the professional and lay press, in public appointments, and our own adoption. Not only so, but most zealously guard it from abuse by expurgation of the Directories' list by not allowing its specific use in the public press, either in advertisements or otherwise, except for persons duly registered, and all other means that may the greater enhance its value, such as purification from covering and the like.

Whilst it is not my intention to strenuously advocate one or other title, I think both historically and legally, and I must be pardoned in personally admiring the simple but emphatic, all-embracing, indicative title, "Dentist," is the one most fitted for universal adoption. It meets well the Dictionary definition of what we profess to practise, "one who devotes himself to the study of the diseases of the teeth and their treatment,"[1] or he who "practises dental surgery and mechanical dentistry."[2]

It has been my endeavour to draw your attention to one point of the many that surround our professional status, that you may give it your earnest thought, for the time will come—if it has not already come—when energetic action will be demanded.

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[1] Worcester's English Dictionary.

[2] Ogilvie's Dictionary.

The Condition of Present Day Dental Pupilage.[1]

BY MALCOLM KNOTT.

ASSISTANT SURGEON, BIRMINGHAM DENTAL HOSPITAL.

THE subject around which I wish to build my remarks this evening is "The Condition of Present Day Dental Pupilage," but although that is the title of my paper, I do not wish to confine myself exclusively to present day condition. The phrase "present day" naturally gives rise to a comparison with previous and future states of education, and so I shall roughly group my remarks under the head of:—*Past, present, and future conditions*, in all of which I wish to deal mostly with the mechanical training, for although in one sense a man is a pupil until qualified, and a student before (and afterwards, I hope), yet we rather understand by *pupilage* that period devoted to workroom mechanical experiences, for which period a student, as a rule, is articled and indentured. Previous to the Act of 1878, this pupilage time was usually longer than at present (namely, four to five years), and if you consider the class of work that was turned out, the materials used, the training of eye and hand necessary to produce anything approaching good work (with the materials then in use), we must admit it was not any too long, in fact, I think I may say it was almost impossible for a man to become a good bone and gold worker under seven years—and *what* work it was! It was my good fortune to be in touch with good workrooms very young in life, and perhaps that is why I am less tolerant of present day work than I should otherwise be. The use of the "scorper," the file, the mouth blow-pipe, were so much more called for and exercised in that work, that much greater attention was necessary, *and* I maintain was given; there was poetry and soul in much, very much, of the work of thirty years ago, that one looks for in vain nowadays; while we have a wealth of appliances, vast improvements, and even entirely new inventions in materials, which make it possible—I say advisedly, possible—to produce most artistic, most natural work, yet the *ability* to produce it, to employ successfully the means and materials at our disposal, I maintain is not what it was, either amongst the qualified dentists or the purely mechanical assistants.

At the risk of being prosy, I should like to mention a few of the processes of training through which the majority of men went twenty-five years ago or more; whether they were going into practice with surgery or remaining purely mechanical assistants made little difference. Take the making of swivels and bolts, which for many years were all made "on the premises," to use a current phrase; after melting your gold and rolling for the plate portion, there would be the hammering and drawing of the wire, in which processes a man would of necessity learn a good deal by bitter experience of the properties of gold when alloyed with different metals, making it brittle or tough, soft or hard—the difference produced by much or little annealing; then having produced his plate and wire from the rough, he would cut off the portions (after drilling them) to form the eye of the swivel, and then his length of wire to form the shank; these would be placed on a properly cut pumice-stone two to four at a time, and soldered. Then came that beautiful piece of work of filing up not only a true swivel for working purposes, but an artistic one, with its bevelled edge and neat shoulder, then finishing off with emery-stick and leaving the swivel a piece of jewellery. After the swivel came the easier matter of the bolt (though many men preferred riveting the swivel on a soft gold pin, thus making a hammered head), and when a man could make a set of bolts and swivels in good style he had educated his eye and his fingers in the use of the file to a greater extent than he would now in turning out any of the ordinary gold or vulcanite sets.

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[1] Read at the February meeting of the Central Counties Branch.

Then, again, such a piece of work as a gold plate and gum-tubes (which cases, as a rule, were maintained in position by springs the swivels of which had to be "boxed"), why, it was work of everyday occurrence, and yet required an amount of skill and dexterity of eye and fingers that you would find now amongst *very few* mechanical assistants, and those mostly middle-aged men, who learnt their art twenty-five or thirty years ago. To pitch a pin for a tube would be a task beyond the very great majority of men who come to our hospitals to perform their surgical work, and as to soldering a pin and drawing the solder through, on, say, a full upper, with eight or ten pins already on, without sweating pin, &c., not 5 per cent. could do it, and yet they are expected to take in hand at once the delicate work of "Richmond crowns, &c." Without going too much into detail, let me remind you of such work as tubes, gum-tubes, gum flats in sections, all-gold molars, sets of upper and lower all-gold and tube teeth, with boxed swivels, or those magnificent, though unhealthy pieces of work, commonly known in workrooms as "stinkers," where the under part of lower gold was covered with platina gauze, and then hard gutta-percha worked in so as to form a soft base. I say, gentlemen, that work of this description could only be peformed after careful study and very hard work, and gave as a result a skilled mechanic with a thoroughly trained eye to "form" and what I always like to call "soul"; and when I say a skilled mechanic I mean *more* than a dental mechanic—a man who could turn out little articles of jewellery, fads in ivory and gold, silver, &c., showing a distinct acquisition of delicacy of touch and neatness in work that were of the most vital importance to a man combining surgical work with mechanical, or rather performing a great deal of *mechanical surgery*. And we must remember that a great number of first-class dentists did their own work thirty-five to forty years ago, and a man who had put in a good foil filling would go into his work-room and make a high-class gold plate throughout, pitching his pins, fitting his teeth, &c.

I do not suppose or assert that every pupil turned out highly skilled at the end of his four or five years, but he was far more skilled than present day men, and had the great advantage, and I ask you to particularly notice this—he had the great advantage of having seen and taken part in a great number of methods, all of which were of necessity educating his fingers and eyes to a far greater extent than is possible in a vast number of workrooms to-day.

And now to come to present day conditions. Pupilage or apprenticeship should be for three years, in fact must be, though whether taken before registration or after does not at present matter as far as I am able to ascertain; the legal point is that you cannot enter for final examination until four years after registration. Now here at the threshold I consider the conditions of pupilage are very uncertain. I can only see one clear year of mechanical work as things are at present, and if that year should be the first year then it is a brilliant exception for a man to do much in that; everything is new and strange to him, both as to the work and the conditions under which it is carried out, and if, as is so frequently the case, he has not any natural bent to mechanical work, it will take him quite that year to get his bearings in such simple things as filing, "scorping," casting and cutting up models, casting and pouring zincs, &c., for I consider a man can train his eye and hand in cutting up a plaster model truly and elegantly, just as well as in contouring or trying to contour an amalgam. Now suppose a man desirous to learn and willing to devote all his energies to developing or acquiring mechanical skill, what is there for him to learn in a great number of workrooms—what can he keep before him as an ideal of style, naturalness and class? If we are to judge by the work we see from many a workroom he has nothing but bad examples and poor—very poor—specimens of what should be, of what is, an art. I hope I do not appear pessimistic, but when one has had so many students passing through his hands or under his eyes as one does at a large school like Birmingham, it is criminal not to note the great failing of mechanical skill shown by so many men, and which one must attribute to the practitioner and his workroom where a student was trained, as well as the student's own want of interest. It is the general experience in the large majority of cases, I speak advisedly, that men have not the slightest knowledge of metal work, soldering, striking up plates, shaping of bands, not even seen a piece of tube or gold work—never seen a piece fitted or a bite taken; their whole experience amounts to a few pieces of vulcanite work of the plainest and poorest description, in which a certain number of teeth have been set in vulcanite, without the faintest idea of representing nature or restoring the contour of the mouth, or of the choice of shape and colour to suit various classes and styles of people.

This must certainly be a reflection on the man who has had the teaching of the pupil. Is it not too often the case that, from the time the solicitor has witnessed the signature and the premium is paid, the only teaching the pupil gets is from the mechanical assistant, if he happens to be of a good-natured disposition, and then it does not follow he has the ability to teach, or much knowledge of his subject; either the pupil is left to pick up what he can from a very so-so mechanic, or he is quickly rushed into a sort of junior assistant, to turn out as many vulcanite cases as possible, and in twelve months finds he has supplanted the assistant, the only source of practical knowledge he had to draw from, and remains for the rest of his pupilage a very poor (though cheap) assistant.

Again, is it fair or reasonable that the teaching should be left to the mechanical assistant? Supposing he *is* a good man he does not receive any of the premium—as I maintain he should do—or any bonus on his pupil's progress, but rather runs the risk that if he imparts his knowledge (and the pupil is quick) of being himself supplanted. Over and over again the question has come up at the various students' societies, as you will have noticed in the journals and reports on this question of responsibility for the teaching resting on the person taking the premium. If a man has pupils it is his bounden duty to devote so much time to the work of instruction or see that they are properly taught by the mechanical assistant, to whom some pecuniary return should be made; but the worst point of all in the present condition of things is, that neither the surgeon nor mechanic have anything like the thoroughness of knowledge they should have, and consequently cannot, if they would, impart it. You will have noticed during the last two years a number of men all over the country complaining of, or bewailing the low ebb to which mechanical dentistry has come, and the poor class work that is turned out from high class practices. The ease with which a good fit may be obtained with vulcanite, and the much increased pecuniary advantage in working in it, has had a great deal to do with the lowering of the class of work, as judged from an æsthetic and prosthetic point of view; and again, in many of the London practices it is considered *infra dig.* to have a workroom on the premises, but rather the work is put out to be made by a rule of thumb by a purely mechanical dentist. No man can make a natural, really artistic denture, who does not work to the mouth. To do that which is right and best for your patient can never be *infra dig.*; to pocket large fees for bad work *is.* To restore the contour of the face by carefully modelled and thought out artificial work, capable of performing mastication as nearly to nature as possible with the class of teeth and materials most suitable and sightly to that particular case, is an art and *not* a rule of thumb, and requires more brain work and ability than a great deal of the crown work that is not thought *infra dig.* But the present day pupil has not been taught this work; he has not seen it either in the surgery or the workroom, and unless some alteration in the present training takes place, we shall bewail a lost art before many years have gone by. To mention in detail a number of instances of pupils' capabilities after two or three years—"Never seen any plate work." "Never seen bands made, only wires used, bent to form tags." "Never soldered anything (melted two gold crowns)." "Never seen a metal bar lower, or tube tooth—did not know how they were fastened on; had struck D.A. plates, one lead and zinc, and driven home with sledge hammer." "Never backed a tooth. Not carried a case of any description through; never mounted a complete upper, with teeth on gum; never ground, but cut away model; knew nothing of clamping swivels." But why enumerate? the matter is patent. When you come in contact with a man who can work or has any ideas on the subject, you find he has been a mechanical assistant—I mean has had to earn his living at it, and so has travelled about a lot.

I think, then, the present condition stands thus:—

(1) Where a pupil is with a capable man he only has by law about one clear year to learn in, and I consider three years the minimum.

(2) If he is with a medium, poor class man he is not taught anything by practice or precept, and not having a standard cannot well work to it.

(3) That even when with a capable man the too common practice is for the whole of the teaching to be left to the assistant.

(4) That he is not made to do any work but what he likes, *or* he is rushed into a poor class of work at the commencement of his career and has his ideas ruined for life.

And then, as to the future of this part of our profession, for part and parcel it is whether a man does his own work or has an assistant, a great deal of the work in the mouth is of a purely mechanical nature; but that what I am contending for, the better training during pupilage, is acknowledged, is evident from the recent additions to the requirements of the Royal College of Surgeons, and the addition of mechanical departments to the hospitals and training schools.

The College of Surgeons now requires that a man shall have attended a practical course of dental mechanics, including the manufacture and adjustment of six dentures and six crowns. I presume the crowns are to be those requiring the use of metals in their construction, so that he shall have some practical knowledge of precious metals and their use in mechanical dentistry; but although this will guarantee a slight acquaintance with dentures, it is a bad move, to my mind, that the responsibility for this amount of training, small as it is, is thrown on the *Mechanical Department*, now having to be added to the teaching schools. Surely it is not too much to require of a man, to whom a substantial premium has been paid for pupilage, that he should turn his pupil out with, at the very least, that minimum amount of knowledge required by the examiner in practical dental mechanics. Instead of making a man take an extra course of pupilage at a dental hospital, surely it should be demanded of a student *before* he joins a dental hospital, that he has already acquired this minimum of knowledge, and if he has not, it will be a matter for him to settle with the man he has been articled to.

The remedy I therefore advocate is a test examination in mechanical knowledge, practical and theoretical, *before* a man is allowed to enter his Dental Hospital course. Once this was decided upon, the result must follow, that a dentist taking a pupil would know that not only did his responsibility rest on his own conscience, but that his teaching would be put to the test by members of his own profession, and men whom he probably knew.

But if the failing to teach pupils is principally in the fact that the dentist himself has not sufficient knowledge, and has had only a poor training, would it not be better to acknowledge the matter and let us have "post-graduate" lectures on mechanical and prosthetic dentistry. We have men in our midst who can teach us, and who would, and I fail to see why we should talk of mechanicians, pure and simple, as the only remedy for the present want of knowledge in dental mechanics, exhibited by so many practitioners. We have still, especially in old-fashioned country practices, men capable of teaching us better things; but when these die out, there are very few of the new-comers to take their place.

Well, gentlemen, I must ask you to deal gently with my lengthy remarks. I am, as I think we most of us are, here to learn, and not afraid to take hard knocks, if they are fairly and honestly dealt. I love my profession, and when I see a canker eating into its vitals I am not afraid to say so. Whatever men may do in the future as to the separation of the two branches—a matter often spoken about—*I* cannot alter my opinion that the two branches are so interdependent that it will be to the detriment of both to divorce them.

Abstracts and Translations.

On the Various Alterations of the Hard Tissues in the Lower Vertebrate Animals.

By Dr. Med. C. ROSE (Munich).

(*With* 28 *illustrations.*)

(Translated for this Journal from the *Anatomischer Anzeige.*)

(*Concluded from page* 128.)

(*b*) CALCIFIED CONNECTIVE SUBSTANCE.

THIS is characterised by lime salts being secreted mechanically in a fully formed connective tissue (fibrillous connective tissue or cartilage).

Contrary to the hard tissue hitherto considered of connective tissue origin, enamel is formed from epithelium cells. The enamel of the higher vertebrate animals is distinguished by its prismatic structure, its distinct double refraction, and sharply defined boundary to the dentine lying underneath. The thinner the layer of enamel is, the further the prismatic structure recedes. Sometimes the same is still perceptible in a polarised light, whilst in ordinary illumination the enamel appears quite structureless. The views as to how far the lower vertebrate animals' teeth possess enamel are still greatly at variance. Whilst Owen, Leydwig and others denied the presence of enamel in most lower vertebrate animals, one has become accustomed, since O. Hertwig's precursory investigations concerning the development of teeth in sharks and amphibious animals, to attribute enamel to the teeth of all lower vertebrate animals.

As far as my own researches extend, one must attribute the existence of a pure layer of enamel to the teeth of most reptiles, amphibians, teleostei and ganoids. Certainly, this enamel is often very thin and limited to the outermost tip of the teeth. Towards the lower part the enamel continues (as O. Hertwig rightly asserts) always in a thin cuticle (upper membrane enamel !). In thin sections it is often very difficult to preserve the enamel. The brittle, epithelial, hard tissue breaks off too easily from the dentine. In the small teeth of living fish the layer of enamel is easily discerned if one examines the teeth *in toto* in a transparent medium after removing the soft structure by maceration. Contrary to the greyish-white dentine, the enamel is usually dyed a light yellow, but may also be of a distinct yellowish brown, or orange colour. (Gadidæ, &c.)

In pikes' teeth the covering of the enamel is very thin, and covers only the outermost tip. Heincke has already very correctly observed this fact. Sternfeld would, however, have us consider also the outer layer of dentine (fig. 8 D) as enamel, and observes enamel prisms between the contiguous parallel running processes of the dentine canals.

But one only needs to examine whole teeth, or very successful sections, in a polarised light to be convinced of the correctness of Heincke's statement. The enamel coating of pikes' teeth is only of a very faint yellow colour, and attains at its very tip only a thickness of 7 to 8 μ. The distinct double refractive enamel is quite structureless, thins rapidly, and towards the end passes, without a clearly defined boundary, into the single refractive upper membrane of the enamel, which is about 1 μ in thickness. The upper membrane of the enamel must be looked upon as a primary stage of pure enamel; therefore, as unfinished enamel. On account of its smaller capacity of refraction, the upper membrane of the enamel can never deviate as sharply from the dentine as finished enamel. Pure enamel always possesses a double refractive power, and always separates itself from the underlying dentine (1) by a sharply defined boundary. With regard to these two decided characteristics, I have succeeded in proving pure enamel of the extraordinary thinness of 1 to 1½ μ in a polarised light to exist in the teeth of some fossil osseous fish (viz., Pachyrhizodus). Obs. (1) In mammalia the outermost dentine layer is frequently re-absorbed before the deposit of the enamel prisms, and the border enamel then represents a surface full of cavities, or in sections, a garland-like indented line. In this manner a firmer connection between dentine and enamel is obtained, as similarly the epidermis of the higher vertebrate animals becomes more firmly connected with the cutis through the development of the papillæ. But there always exists a strongly-defined border line between the enamel and dentine exactly as between the epidermis and cutis.

Clear indications of prismatic structure appear to be rare in the enamel of the teeth of fish. Up to the present time I have only seen indications of prismatic structure in old Devonite Crossolperygi, Dendrodus, &c.

The much discussed question, whether sharks' teeth possess enamel or not, is of the greatest interest. Owen denies the presence of enamel in sharks, and calls the outer layer (having but few tubes) of many sharks' teeth vitrodentine. O. Hertwig, on the other hand, tries to prove that there is no forcible reason for not defining as enamel the outer layer in question. O. Hertwig declares besides that the upper surface of sharks' teeth is covered with a firm membrane possessing all the qualities of the upper membrane of the enamel. On the authority of O. Hertwig all later investigators have adjudged enamel to sharks' teeth, without further consideration. I myself have been induced in my essay on Chlamydoselachus[1] to point out by a line (fig. 9) the supposed former border of enamel in an uncalcified tooth section. Yaekel[2] designates the outer layer of sharks' teeth as "Placoin enamel."

The result of my later investigations has now proved the interesting fact "that sharks' teeth possess indeed an upper membrane of enamel, but no enamel." They are therefore like the teeth of the Edentata, having no enamel, in which I likewise several years ago found an upper membrane of enamel lying immediately upon the dentine. Whilst, however, in the Edentata this upper membrane of enamel represents the last remains of a former thicker enamel coating, "the upper membrane of the enamel in sharks' teeth must altogether be considered as the very commencement of an enamel structure."

Through being covered with an upper membrane of enamel, living sharks' teeth obtain the beautiful enamel-like gloss. In fossil sharks' teeth, the upper membrane of enamel consisting of an organic kerate-like mass is of course destroyed. However, from being formerly covered with this uniform thin little skin, the outermost layer of dentine also possesses a perfectly smooth, shiny appearance, the more so as the small channels of dentine hardly ever

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[1] Schwalbe's "Morphological Works," vol. iv., No. 2.

[2] Yaekel, on "Microscopic researches on the subject of Palæontology," 1891, Annals on Mineralogy, Geology and Palæontology.

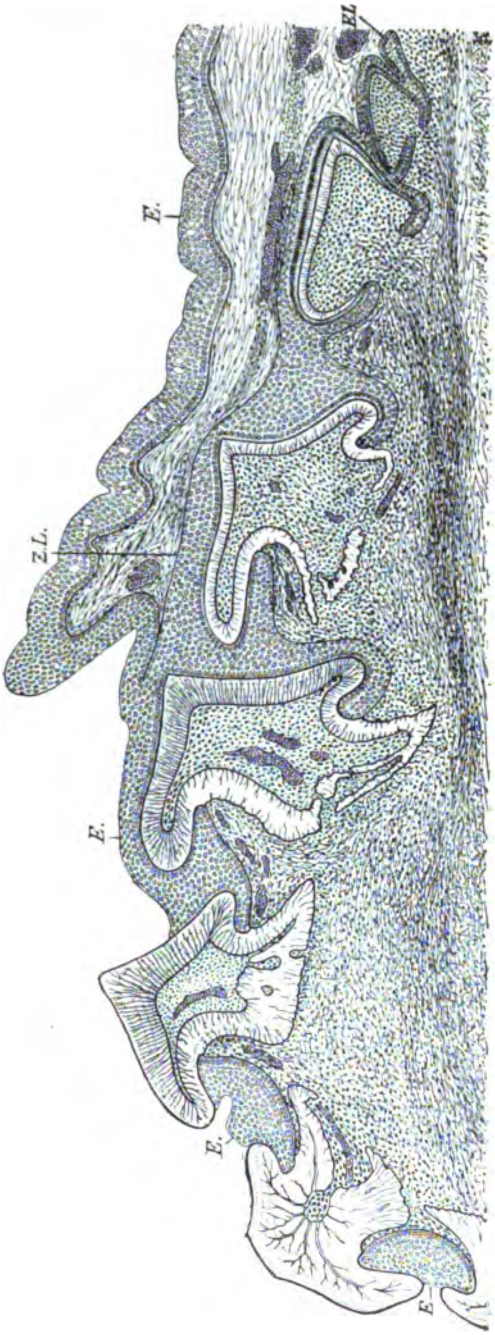

Fig. 25.—Mustelis Vulgaris. Young Animal 38 cm. long. Sagittal Section through the Lower Jaw.

E., jaw epithelium. Z.L., tooth band which comprises three successional teeth and the knotty thickened end of the successional tooth band, E L. × 2.

reach to the surface. The outermost layer of true dentine, as far as it is not re-absorbed during the formation of enamel, consists in all vertebrata of vitro-dentine. The thickness of this layer of vitro-dentine may vary greatly; thus for example in (fig. 1) the Thelolepis, it consists on the surface of the scale only of about $\frac{1}{1000}$ mm.; on the lateral parts, however, of $\frac{1}{50}$ mm. In the Carcharodon (figs. 5 and 6) the vitro-dentine of the surface is immeasurably thin. Only in the indented side edge does the dentine free from tubes attain a greater thickness (fig. 5, V D).

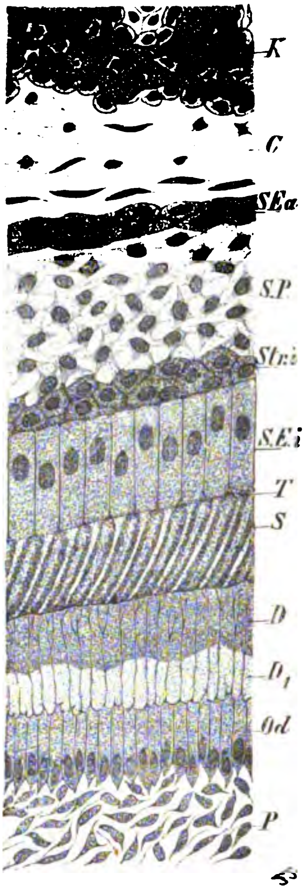

FIG. 26.—DIDELPHYS AURITA. YOUNG MARSUPIAL. LONGITUDINAL SECTION THROUGH THE GERM OF A MOLAR TOOTH A LITTLE UNDER THE TIP OF THE CROWN.

P., pulp. Od., odontoblasts. D., uncalcified, D.,$_1$ calcified dentine. S., decalcified organic remains of enamel. T., Tomes' processes. S.E.i., inner enamel epithelium. Str.i., Stratum intermedium. S.P., enamel pulp. S.E.a., outer enamel epithelium. C., pericementum. K., alveolar bone. × 250.

Under this extremely thin layer of vitro-dentine, there is in sharks' teeth a layer of dentine which O. Hertwig has considered to be enamel. The extremely thin dentine canals run all in an almost parallel direction here. Uncalcified Neumann's sheaths can hardly any longer be perceived. Their lateral connective branches are quite wanting. In short, the lime-yielding substance is greatly diminished at the expense of the organic lime salts. Whether the lime-yielding fibrils have undergone also chemical changes I cannot say. At all events, the mass of fibrils is so small that the uncalcified tissue no longer stains blue with Lyons blue. In sections of the lower jaw of the Mustelis vulgaris, I was enabled to observe that the uncoloured layer of dentine in the youngest tooth germs was rather thin, but that it increased in thickness in the older tooth-germs. This observation points to the fact that the bulk of the lime salts goes on increasing at the expense of the lime-yielding foundation substance in the outer layers of dentine during the development of the teeth.

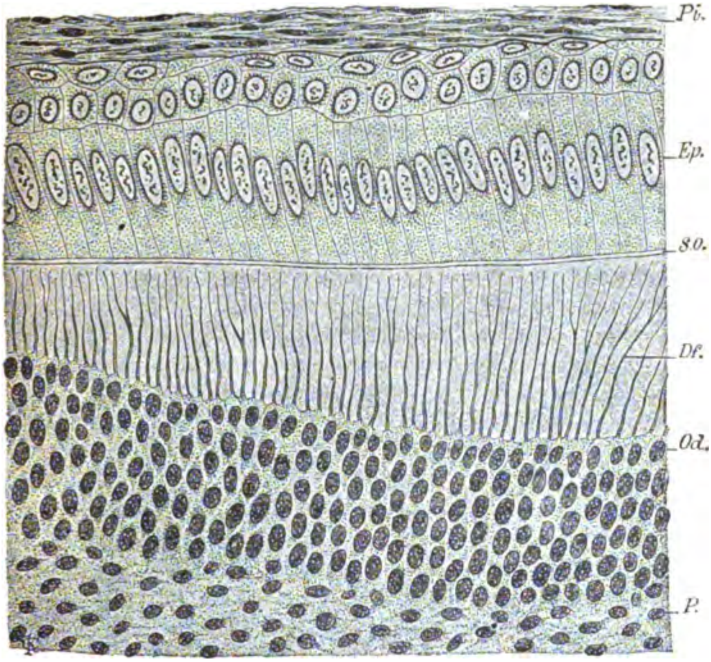

FIG. 27.—MUSTELIS VULGARIS. YOUNG ANIMAL, LENGTH OF BODY, 38 CM. FIRST FOUNDATION OF DENTINE IN A YOUNG TOOTH GERM OF THE LOWER JAW.

P., pulp cells of tooth. Od., odontoblasts. Df., dentine continuation of odontoblasts. Suc., upper membrane of enamel. Ep., epithelium cells of epithelium sheath. Pi., pericementum. × 600.

It is not astonishing if such a thickly calcified dentine, poor in lime-yielding foundation substance, shows somewhat changed physical and chemical properties when compared to common dentine. O. Hertwig has observed that the dentine in question when carefully decalcified in muriatic alcohol falls into nothing but parallel needles or fibres. "Is this, however, remarkable in dentine which contains very numerous parallel-running canals, and no organic transverse connective branches between the same? Furthermore is it not natural that a dentine poor in organic foundation bulk leaves only small remains of organic bulk when decalcified in stronger acids? Is it not also natural that a dentine remarkably rich in lime salts and poor in lime-yielding foundation substance should be distinguished by a greater hardness and brittleness? Besides, the hardness of this dentine does not nearly equal that of enamel. One can easily cut off shreds from the outer layer of the sharks' dentine with a sharp penknife. But the knife will not penetrate enamel.

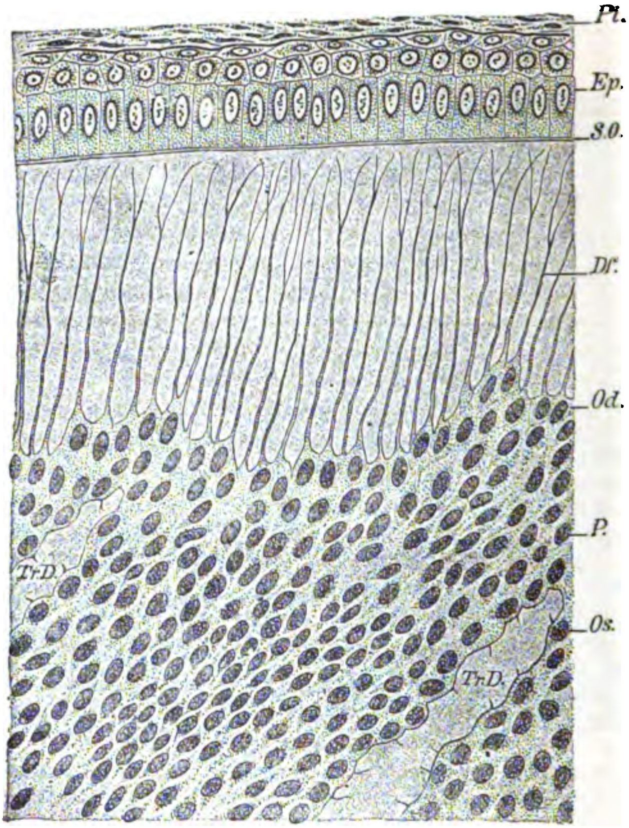

FIG. 28.—MYLIOBATIS AQUILA. FOUNDATION OF DENTINE AND TRABECULAR DENTINE (Tr.D.) IN A YOUNG SUCCESSIONAL TOOTH.

P., pulp cells. Os., osteoblasts of trabecular dentine. Od., odontoblasts of true dentine. Df., dentine continuation of odontoblasts. S.O., upper membrane of enamel. Ep., cells of epithelium sheath. Pi., pericementum. × 450.

Very significant is the fact that exactly the same kind of tubular dentine which O. Hertwig wished to designate in sharks as enamel, also occurs in osseous fish but that it lies here "under the true enamel" (fig. 8, D). In the pike also the outer layer of dentine often dissolves to small organic remains in decalcification in strong acids, and in maceration with muriatic alcohol breaks into needle-shaped bundles. But surely no one will be tempted for the future to designate the outer layer of dentine under the true doubly refractive, sharply bordered, thin enamel, also, as enamel.

When slightly magnified the outer layer of dentine in the Carcharodon is bounded by a moderately sharp line (fig. 5, Co). This sharp boundary line loses itself towards the sharp edges of the tooth and finally completely disappears. When considered more highly magnified it is seen that the apparent border of enamel is mistaken for a contour line interspersed with numerous small interglobular spaces (fig. 6, Co).

The presence of small canals in a hard tissue would not, as O. Hertwig correctly asserts, speak without further proof against the existence of enamel in the same. Nevertheless the small enamel canals of marsupials, crocodiles, rodents, and so forth, which run through the whole thickness of the enamel, are only long crevices in the cement substance between the enamel prisms. These enamel canals never form the uninterrupted continuation of true dentine canals, and contain no cell processes of connective tissue odontoblasts. Therefore, when the dentine canals run thus uninterruptedly through the apparent boundary line, as in fig. 6 (Co), there cannot possibly be a question of enamel canals.

Without mentioning the different reasons just cited which speak in favour of the outer layer of sharks' teeth consisting of dentine, the following facts prove that there can be no question as to their containing true enamel. The outer layer neither separates itself in a sharp line from the dentine lying underneath, nor does it show in a polarised light the clear double refraction of enamel.

As regards this double refraction, it is most clearly perceived in sections of fossil teeth. In living teeth dentine may occasionally show the same double refraction as enamel, according as the direction of the section touches the lime-yielding fibrils. In fossil teeth, on the other hand, in which the organic bulk is destroyed, the enamel is nearly always separated through its strong double refraction from the single refractive or only weakly double refractive dentine.

The developmental history gives a final decision regarding the nature of the dentine of the outer layer in question in sharks' teeth.

The complete or nearly completely formed enamel is dissolved in the decalcification of the tissue to the very smallest particles. Through the development of the gas connected with it, the epithelium of the epithelium sheath is always pressed back, and the space between the dentine and the epithelium sheath appears larger in sections than it is in reality. Also in teeth without enamel the epithelium sheath is usually loosened in the decalcification of dentine through the development of gas; but, when in very carefully decalcified sections the epithelium rests lightly without any intermediate space upon the uncalcified dentine, as in fig. 25, this fact very forcibly speaks in favour of the non-existence of enamel.

Only in quite young tooth germs of such vertebrata whose enamel also in its finished state is rich in organic bulk and in enamel canals, does one succeed in obtaining the organic remains of enamel now and then in a natural state by careful decalcification with osmic, chromic or pikrin acids. But these organic enamel remains never contain small canals; even when in uncalcified enamel they exist in abundance. The enamel canals, which, indeed, only represent particles of organic foundation substance which has remained uncalcified, do not separate any more from the remaining organic foundation substance; they are placed in the same manner as the side, feather-like, entwined. embranchments of the Neumann's sheaths and the spider-like processes of the bone corpuscles, which are likewise no more recognisable after the decalcification of the dentine and of bone.

In young tooth-germs of crocodiles the organic remains of young enamel form a uniform granulated mass. In decalcified sections through young tooth-germs of marsupials the prismatic arrangement is now and then still perceptible in the organic enamel remains (fig. 26 T.), but not a trace of small canals which nevertheless exist in such masses in the uncalcified enamel of marsupials.

If, on the other hand, one examines carefully decalcified sections through young shark's tooth germs, one perceives that the ungranulated, uniform, clear foundation substance of uncalcified hard tissue is traversed by parallel canals reaching nearly to the surface. The small canals are filled with protoplasmic cell processes, whose transition is distinctly discernible in the cell body of the odontoblasts (figs. 27 and 28, D.F.). In shark, it is a question of true tubular dentine, which is superficially covered by a thin layer of vitro-dentine. Immediately upon the vitro-dentine lies a highly refractive, thick little skin of 1-1½ μ, which is connected with the cells of the epithelium sheath, is indissoluble in strong acids and alkalies, in short, represents a small upper membrane of enamel.

In the further growth of the tooth foundation, the superficial layer of vitro-dentine frequently becomes somewhat broader, the dentine canals become narrower, here and there interglobular spaces appear, the fibrillous foundation mass of the dentine decreases more and more at the sacrifice of newly deposited lime salts. But no other important change occurs.

It might certainly not be impossible that in one or another shark's tooth a thin layer of true double refractive enamel appeared, in place of the uncalcified upper membrane of enamel, as in osseous fish and ganoids. Yet I do not consider this possibility very probable. As already stated by Hofer in 1894, at a meeting of the Morphological Society at Munich, the above-named oldest upper Silurian shark's scales of Thelolepis possess no enamel. Moreover, Pander declared, as far back as 1856, that the Thelolepis scales only consist of tubular dentine. Rohon, on the other hand, ascribes enamel to the upper Silurian sharks' scales. As Rohon's original microscopical preparations are at my disposal, I can easily explain this erroneous statement (of Rohon). Rohon has throughout considered the superficial layer of vitro-dentine of the dentine as enamel (fig. 1, V.D.). As already stated, the thickness of this vitro-dentine layer varies greatly. In young scales of Thelolepis the vitro-dentine layer is almost completely wanting. Everywhere the small canals of dentine reach nearly to the surface, and when the rudimentary basal plate of osteoid tissue is likewise not yet developed, then the whole bulk of the scale consists simply and purely of tubular dentine. In the living state the Thelolepis scales were also covered by an upper membrane of enamel.

As hitherto an upper membrane of enamel has been proved to exist in all tooth and scale foundations, even when they possess no enamel, we must consider this cuticle formed from the epithelium as an important element of every tooth. "The chief object of the epithelium sheath, therefore, rests upon separating a very resistant chemical and mechanical cuticle, which represents at the same time a surface-covering and a mantle form for the outer shape of dentinal surface. The formation of calcified enamel is a secondary appearance. The lower division of sharks probably possesses as a rule just as little of completely formed enamel as of true bone."

Ancient Dentistry: Historical and Anecdotal.

BY MR. JAMES CUMMING.

IN the excavations at Pompeii a remarkable collection of instruments was discovered. It evidently belonged to one practitioner, and is as large an equipment as any modern surgeon is usually supplied with. Amongst the dental instruments are several not unlike our modern forceps, the hawksbill being noted especially. One of the most interesting instruments is a long rod, with a metallic plate at one end, and at an angle of 35 deg. It was first thought to be a cautery for internal operations, but its remarkable resemblance to the modern laryngeal mirror suggests the possibility that it was employed in a similar manner in ancient times. Between the time of Aristotle and Galen, who was born about A.D. 130, but little progress was made in medicine. Galen was evidently a man of deep thought, and left behind him numerous professional writings, which show a more exact acquaintance with the anatomy of the human body than any of his predecessors. His description of the roots of the molar teeth are most accurate, and he asserted that the teeth were connected by a branch of nerves, and that they were not deprived of sensibility when filled, and as a remedy for toothache recommended the use of vapour baths, and the introduction into the tooth of a small piece of wax, pressed well into the cavity by means of an instrument. He taught that the teeth were true bones formed in the fœtus, but only become apparent after birth.

Very little is known of the practice of dentistry in the early portion of the Christian era, perhaps for the reason that the majority of physicians considered its study and practice of little importance, but the former aversion to extraction was still continued, and various remedies proposed to avoid it and relieve the pain. One author recommends the application to the root of a mixture of milk-thistle juice and flower, which he claimed would cause the tooth to loosen and fall out. Another favoured the burning or cautery treatment; with a hot iron he attacked diseased gums or aching teeth indiscriminately.

Gagliardi was the first who described the enamel of the teeth, and obtained sparks from it by striking it against steel. Celopton established the difference between the enamel and dental bone, and asserted that in the latter he had discovered traces of the filaments of nerves. One Spanish dentist seems to have been of greater merit, as he conducted his operations the same as those of the present generation. When a tooth was carious, he removed the deposit with instruments, destroyed the nerve with a red-hot iron, and proceeded to fill the cavity with beaten gold. He is also credited with having devised many ingenious instruments adapted to their purpose. John Arculanus is one of the first who refers to the filling the teeth with gold in the Middle Ages. Gold was not, however, used to any extent until the eighteenth century. The treatment of alveolar abscess was to permit them to ripen, and then treat them with honey and ointment. The remarks of one writer would be very applicable at the present day, as he inveighs very strongly against the quackery then prevalent in dentistry, and demands that only surgeons, and not barbers and mountebanks, should be allowed to practise it. At this time dentistry had made but very small progress, although surgery had made some little advancement. Instruments were made less cumbersome and dangerous, and consequently the objection to extraction began to decrease. The belief that caries was produced by worms gained ground, and held a prominent place in the public mind. The dentists of that day gave their attention to the study of the imaginary worms and their habits, and recommended various remedies to get rid of the parasites—*eau de vie*, burning out the diseased teeth with the wood of the ash, and the inevitable hot iron, with the object of making the residence of the worm too hot for him.

It is singular how this belief has extended to the present day; even otherwise intelligent people will gravely assure you that by inhaling the vapour of henbane the worms will drop out, as they have tried it repeatedly; and ridicule will not destroy their belief in the idea. In China the idea is universal. The Chinese quack, when applied to for relief from toothache, will tell the patient that worms are the cause, and proceed to operate by inserting a spoon-shaped instrument, in the hollow of which are concealed a few small worms. After poking about some time, he withdraws it from the mouth, and, by an adroit movement, produces the worms, and informs the patient that he is cured. Imagination must effect the relief from pain.

The same aversion to extraction that existed amongst the ancient dentists descends to the Chinese, for they rarely use the knife and have no knowledge of surgery or anatomy. The dentist who is a great impostor exhibits a number of teeth which he states he has extracted without pain, and shows some grey and white powders with which he has accomplished the wonderful operation, which, it is needless to say, is impossible. There are tricksters who impose upon the credulous by professing to perform incredible operations.

A naval officer who had heard a great deal of their skill resolved to test them. Having a troublesome upper molar tooth, he ordered a Chinese dentist to be sent on board. When he appeared, the first thing was to fix the charge. On inspecting the tooth, he pointed to the cheek bones, saying the fangs ran up so high, he could not extract it under nine dollars. He was offered one dollar. That, he said, was too small, but agreed to take it out, without pain, for two dollars. Accordingly he commenced operations by inserting some white powder under the gum, at the same time forcing the gum back. After using a grey powder, he began to tap the tooth to see if it was loose, and then got the patient to sit down upon the deck, and placed his head between his knees. He then introduced something into the mouth wrapped up in white paper, and in another moment the patient felt as if his whole jaw was wrenched off, and snap went something. This was the whole crown of the tooth broken off, causing excruciating pain. The scoundrel looked much ashamed of himself. On inspecting his instrument, it was found to be a common pair of nippers used to draw nails. So ended his experience in Chinese tooth-drawing.

The Japanese dentist does not frighten his patient with an array of steel instruments. All his operations in tooth-drawing are performed by the thumb and forefinger of one hand. The skill necessary to do this is only acquired by long practice. His education commences with the pulling out of pegs which have been pressed into soft wood ; it ends with the drawing of hard pegs which have been driven into an oak plank with a mallet. A writer in the *Union Medicale* says that no human jaw can resist the delicate but powerful manipulation of the Japanese dentist. Such a gift would be a very economic one by doing away with the use of forceps. In mechanical dentistry they rank above any other ancient nation. Their dentures are said to answer the principal object desired, viz., " the mastication of food." All full upper cases are retained *in situ* by atmospheric pressure. This principle is coeval with the art. The status of dentists does not rank very high, and in a country where class distinctions are so marked, it is graded with carpenters, which fact is shown by their word "haidyikfsayan," tooth carpenter. Dentistry is practised to some extent as an itinerant business. The " tooth-carpenter," taking his seat beside the highway, exhibits his gilded sign, specimens, and material. The base is generally wood, the teeth of ivory, or shark's teeth, let into the wood, retained in position by being strung upon a thread, which is secured at each end by a peg driven into a hole, whence it makes its exit from the base. Iron or copper tacks are driven in, to serve for masticating purposes, the unequal wear of the wood and metal keeping up the desired roughness of surface. For these dentures they may receive as high as five dollars, but from one to two dollars is about the usual rate.

It was about the year 1588 that the first work appeared devoted entirely to dental science. It did not contain many new ideas, and the same might be said of the great majority of works till the end of the 17th century, so far as the practice of dentistry was concerned, though a correct knowledge of the anatomy and diseases of the teeth were contained in the works of the more prominent surgeons, such as Ambrose Pane, Wharton, Steno, Highmore, after whom the various ducts and maxillary sinus were called. In the reign of Queen Elizabeth, "kind hart" was then the conventional name of the tooth-drawer, and it occurrs frequently in the literature of the period. The costume of a tooth-drawer of the time was rather fantastical. He not only wore a brooch in his hat in so conspicuous a manner, but his belt was garnished with teeth to signify his profession. From this it is evident that dentists had their distinctive trade signs as well as the barber surgeons. The fashion of wearing the brooch disappeared after the reign of Elizabeth. It was also customary at this time to use hot wires to destroy what was supposed to be the worms in the tooth, and also to make the patient hold his head over a basin of hot water by the fireside, and to throw a handful of henbane seeds into the fire, the seeds, bursting with the heat, generally shot what appeared to be a small worm into the basin, which the quack pointed out as having come from the tooth. This can be traced to a much earlier date in the world's history. Queen Elizabeth was not exempt from the ills of toothache, as appears from a letter from her prime minister suggesting that the only cure is to have the tooth out. In a work published in her reign, called the " Birth of Mankind," there are several recipes for keeping the teeth clean. One of them is to wash the mouth every morning with red wine ; another, to grind white pebbles to powder, mix with mastic, and rub the teeth once in ten days.

In Scotland, in the reign of James the Fourth, dentistry is noticed in the exchequer accounts, so many merks Scots having been paid out for services rendered by one John Kennedy. From this time to the beginning of the 19th century, dentistry seems to have made but slight advancement upon the ideas of the past centuries, as may be judged from the following extracts from a few of the numerous works that appeared during this period.

From the deplorable ignorance that some of these extracts exhibit, one might suppose the art was retrograding, and certainly they do not show any superiority over some of those ancient works I have referred to. Mr. A. Tolmen, a surgeon as well as a dentist, who practised in the year 1752, published a treatise on the teeth. His ideas on anatomy were, to say the least, peculiar, for he informs his readers that the number of teeth in a grown person are generally thirty-six, more or less, according to age, constitution, &c. The great teeth in each jaw seldom appear till the age of twenty-one, and sometimes not till forty. The canine, or dog teeth, which are two in each jaw, are so called from resemblance to the tusks of a dog; those of the upper jaw are by some called the eye teeth, from the communication of nerves betwixt them and the eye. In treating of the diseases of the teeth, he considers that particles of air enter the pores of the enamel and may occasion a "tremor" of the tooth, but that the external cause is tartar accumulating on the surface of the teeth, produced mainly by intemperance, or from eating sweetmeats or sugar, the gluey juice insinuating into the gums. But, on the other hand, he combats the vulgar idea that all pains of the teeth are caused by a worm that gnaws and eats the membranes and nerves of the teeth. This notion, he says, is founded on pretended experiments on those insects which, by smoking henbane, will fall from the teeth; but whoever will be at the pains to make some trials with the microscope may prove the absurdity of this notion. In his treatment of caries he recommends the use of the file and the cautery, the filling of the cavity with wax frequently renewed, and then he rails against the fashion amongst English ladies of having their teeth scaled, which he calls a shocking practice.—*Australian Journal of Dentistry.*

Porcelain Inlays as made by Dr. Jenkins of Dresden.

By EDWIN T. DARBY, M.D., D.D.S. (PHILADELPHIA).

THOSE who approve of the restoration of decayed teeth by means of porcelain inlays will be interested to read the following extract from a paper published in the *International Dental Journal*, by Edwin T. Darby, M.D., D.D.S., Philadelphia, on "Porcelain Inlays as made by Dr. Jenkins, of Dresden."

The system that Dr. Jenkins has invented and practises is not altogether new; it was suggested to him by the glass inlays quite prevalent some years ago. I doubt not that many of you have tried the glass inlays and found them so defective that you abandoned them. I think the experience of most men who have had anything to do with these has been such as to make them regret ever having done anything with them. Dr. Jenkins's system partakes somewhat of that method. His facilities for obtaining a knowledge of glass and porcelain work have been very great. Living, as he does, in Dresden, surrounded by the potteries and glass-works of Saxony and Bohemia, he has learned from the potters and glass-workers a great many things that he might not have learned had he been in this country. You may be interested to know something of the man himself, because we all have our ideas of men, even if we have never seen them. Some of you may know Dr. Jenkins personally. A more charming man you have never met; an American by birth, a gentleman of culture and refinement. He went to Germany more than thirty years ago and established himself in Dresden. He has made a great success as a practitioner; he numbers among his *clientèle* some of the most important personages of Germany, and he ranks among the best American dentists of Europe. As a companion, a comrade, no man is superior to him; he is one of the most genial, pleasant, lovable men it has ever been my privilege to meet.

And now for his work. Dr. Jenkins found that the glass inlays as used by Herbst and others in Germany, and as we have used them in America, were a great disappointment to him, and he sought to produce a porcelain, fusing at a comparatively low temperature, which would take the place of glass inlays. He went from pottery to pottery, and factory to factory, and gained what information he could from those who were practical workers in porcelain and glass. He found he could make a porcelain that would fuse at a comparatively low temperature, or below the melting-point of pure gold. It was my privilege to spend a week or more with him a year ago last summer, and I saw him do a large number of these operations, and was charmed with the results he produced. I have seen in the mouths of my patients operations that he did two or three years ago; some I have seen since I returned, and they look beautiful, showing no change. Some have objected to his system because the inlay is held in place by zinc phosphate cement. It is true this would seem to be a serious objection, for we all know that these zinc phosphate cements are destructible in the secretions of the mouth; they do disintegrate and wear away; but, so far as my observation has gone, there has been no wasting around these inlays, even in cases of two or three years' standing. You must bear in mind that there is a very thin layer of cement exposed to the secretions of the mouth.

And now I will endeavour to describe, in as few words as possible, the method of making these inlays. It must not be supposed that without some practice perfect results can be obtained. If you undertake it, it would be well to make a few and insert them in extracted teeth before attempting to do them for the mouth. A little practice will enable you to get correct contours and perfect adaptations to the cavity. It is not the kind of work that careless, inartistic men should undertake, but in the hands of men who are the opposite of this, beautiful and satisfactory results may be obtained.

Let us take, for instance, an approximal cavity in an incisor, such as has been prepared in this plaster tooth. You will observe that this cavity has much the shape of the bowl of a spoon. From this cavity the mould can be easily removed. The shaping of the cavity can best be done with a spoon-shaped excavator and round burs. When all decay has been removed and the margins well defined, a piece of No. 30 rolled gold, rather larger than the approximal face of the tooth, is carried well beyond the cervical border of the cavity, and then a pellet of punk or bibulous paper is used for pressing it into the cavity. I have found that I can best keep the gold well up to the cervix by folding the upper edge upon itself and then slipping a piece of floss silk between the folds and wrapping the floss once or more around the neck of the tooth. When the gold has been made to conform to every portion of the cavity, the floss is cut near the tooth, and the loose end pulled away. If this is done with care, the matrix will not be displaced. The matrix is then gently removed from the cavity and placed in an investment of pulverised asbestos, which may be mixed with alcohol or water. You will observe this little platinum cup with a long handle and cap of platinum to cover the invested mould. The investment is made in this little cup because the porcelain is baked in this. After the investment has been slowly dried over the flame of a lamp or gas-burner, the porcelain powder of the desired shade is mixed with absolute alcohol into a thin paste and the mould partially filled. You will observe this little oven in which it is baked is lined with asbestos felt, and upon its under surface an opening for the gas flame from the blow-pipe. You will also observe the manner in which this blow-pipe is mounted upon these little tripods: these act as a stand for the blow-pipe, and save the necessity of holding the pipe in one hand during the process of fusing. The air is furnished by this ingenious little bellows, which is neat and compact. The baking process is not difficult, although considerable heat is required to fuse the porcelain. As there is some shrinkage in the baking of porcelain, it will be necessary to add porcelain powder two and often three or four times, depending somewhat upon the skill of the operator and the size and character of the inlay to be made.

My own experience has been that about three bakings are required for most pieces. There seems to be greater danger in getting too much rather than too little material in the finished inlay. If too full, and the porcelain overlaps the margins of the cavity, it often means a new inlay, beginning at the first step in the procedure.

After the inlay has been fused it should be allowed to cool down slowly; then the gold-foil which formed the matrix should be peeled off, and the inlay tried in the cavity to see that it is an exact fit. If it be found correct, the next step is to cut with a small diamond disc slight grooves around the inlays, that the cement may have additional hold. When this has been done the cavity should next be made retentive in shape. If the cavity be an approximal one, a slight groove at the cervical border, and a small pit near the cutting edge will suffice for an incisor; or if a bicuspid or molar, somewhat the same shape should be given the cavity that would be required if a filling of gold or alloy were to be used.

In the selection of a cement the operator should take one which harmonises with the colour of the tooth and inlay. If a darker cement is used the line of junction between the tooth and inlay will be more marked. My own experience has taught me that the Harvard cement is best suited to this kind of work; it seems to last better than any which I have used. In setting the inlay it is well to mix the cement moderately thin, and put a little in the cavity and a small quantity on the under surface of the inlay, and then with a piece of orange-wood, shaped like a wedge, force it between the adjoining tooth and the inlay. A piece of thin linen tape is often useful in drawing the inlay into place, or even a piece of floss silk wound around the tooth two or three times and tied will insure good adaptation. The cement should be allowed to harden for fifteen or twenty minutes before the saliva comes in contact with it. The greatest difficulty which I have encountered has been in restoring the corners of teeth and getting proper contours, and I fancy others who adopt this kind of work will meet with the same difficulty; and yet a little experience will enable us to overcome this. When one has succeeded in producing a good inlay the result is so satisfactory that he feels encouraged to persevere until the most difficult cases have been accomplished.

Medical Practice by Companies.

A BILL, the object of which is to prohibit the profession or business of physician, surgeon, dentist, or midwife being carried on by a company, was introduced by the Lord Chancellor into the House of Lords just before the Easter holidays.

Although the history of the matter has already been mentioned on several occasions, it may be worth while briefly to recapitulate the steps which have resulted in inducing the Government to take this matter in hand. During the May session of the General Medical Council, Mr. Tichborne, the representative of the Apothecaries' Hall of Ireland, called attention to an Irish drug company, which avowed in its memorandum of association that it would *inter alia* carry on the business of physicians and surgeons ; no qualified persons were amongst its original shareholders. It was pointed out in the course of the discussion which ensued that this was no new thing, nor was it an isolated instance, certain people having discovered that by incorporation and registration as a limited liability company they could completely avoid the consequences which would be incurred by an individual who contravened those Acts which require a personal qualification for the pursuit of certain callings. It was stated further that a number of companies had been formed with the object and the result of successfully evading such Acts. This immunity arose, at least partially, from a technical legal interpretation of the word "person," which had been held not to apply to a company.

An attempt to provide a remedy had been made some two years previously by a Joint Committee, upon which the British Medical Association, the Medical Defence Union, the British Dental Association, the Royal College of Veterinary Surgeons, and the Pharmaceutical Society had been represented, and it happened that two members of the General Medical Council (Mr. Victor Horsley and Mr. Tomes) had served upon this Committee, and were therefore well acquainted with the facts. The General Medical Council appointed the President and these two gentlemen as a Committee to endeavour to procure some amendment of the law, and the present Bill is the direct outcome of the efforts of that Committee.

At the time of the earlier attempt there was a prospect of an important Companies Act Amendment Bill coming forward ; a Departmental Committee of the Board of Trade was sitting, and both this Committee and the Board of Trade itself were approached, but with only a small measure of success, for these bodies held that their proposed Bill was primarily a financial measure. Whilst more or less sympathetic, they were not willing to burden their Bill with clauses bearing upon another aspect of company law. The late Lord Herschell was, however, induced to set down an amendment, which there was good reason to suppose the Board of Trade would not have opposed ; but the Bill passed into the hands of Select Committees from which it has never since emerged.

At this point the Committee of the General Medical Council took the matter up, and whilst by no means oblivious of the interests of their former fellow workers, recognised that their only status was with regard to the Medical Acts and the Dentists Acts, for the administration of which the General Medical Council is responsible. They commenced upon the old lines, and sought an interview with the President of the Board of Trade, in the hope that they might get a clause inserted in the coming Companies Act Amendment Bill. But they found that the opinion that the desired clause would not find an appropriate home in that Bill still prevailed.

The Lord Chancellor was then approached, and with much greater success. He at once recognised the existence of the anomaly, and the necessity for its remedy, so fully that he took the opportunity of a Pharmacy Bill being then before the House of Lords to insert a clause with generally similar objects into that Bill. This, however, for reasons which need not be entered into here, was not proceeded with. The Committee made a brief report to the General Medical Council at its November meeting, and on that occasion Mr. Tichborne was added to the Committee.

As will be seen, the Lord Chancellor has preferred to bring forward a short separate Bill instead of inserting clauses into a Companies Act; and his Bill, which is printed at page 874 [*B.M.J.*], will be hailed by the profession with satisfaction. Nothing could be shorter, simpler, or—so far as can be foreseen—more efficacious; the Bill does not concern itself with questions of title, &c., but simply forbids companies to carry on practice, as being in the nature of things unfit to do so.

As a Government Bill, introduced with the weight of authority of the Lord Chancellor, it is pretty certain to pass the House of Lords, but it is very possible that a certain section of the members of the House of Commons, to whom *caveat emptor* is a sacred formula, may offer opposition. Members of the medical profession, however, can use their influence to secure support for the Bill in the Commons with great effect, for the best of arguments is rendered yet more convincing to the mind of a member of Parliament when it is presented to him by a constituent.

The arguments which have been laid before the Government, and which appear to have influenced them, are briefly these. That an abuse exists and calls for remedy was proved by the submission of a large number of instances of offending companies. It was further pointed out that such companies really have no legitimate reason for existence, for, as was emphasised by the position assumed by the Board of Trade and by its Departmental Committee, the incorporation and registration of limited liability companies have primarily a financial object. These formalities are designed to protect the shareholders' capital. In the conduct of medical or dental practice there is no risking of capital in trading operations, and therefore no need of limited liability. In fact, there cannot be said to be any function for capital at all. Accordingly nearly all these companies are of the "one-man" type, and have a purely nominal subscribed capital of ridiculously small amount, so that it is obvious that their incorporation had some object quite other than financial security.

Then, too, personal qualification and personal responsibility are of the very essence of the relation between practitioner and patient. It is quite obvious that a company cannot pass examinations and obtain a qualification. Nor can it be endowed with a proper personal responsibility, for the emoluments would go, not to the practitioner attending, nor, should he chance to have partners, to his firm, but to an intangible corporate body composed wholly or in part of unqualified persons, and the mere paid agent would be virtually irresponsible, as would also his corporate employers. It may be added that experience has shown that it is practically impossible to secure a conviction either against a company or its employees for infringement of Medical Acts.

It seems probable, in view of the recent decision in the case of Hunter *v.* Clare, that the Bill would be strengthened by the insertion of such words as "medical practitioner," and there would probably be no difficulty in securing their insertion. But the Bill as it stands is a good one, and we may gratefully accept the gifts the gods provide for us, hoping at the same time that it may be an earnest of better things in the future than the half-hearted medical legislation of the last half-century. It may be added that the Lord Chancellor's Bill is simpler and more decided in the line which it takes than was the late Lord Herschell's amendment to the Companies Act Amendment Bill, for that endeavoured to deal with the questions of medicine, dentistry, and pharmacy in a single clause, so that the failure to obtain the insertion of a clause in the Companies Bill has in the long run been absolutely beneficial. Indeed, the strength of the present Bill is largely due to the fact that the Lord Chancellor recognised that, although there were points of close similarity, there were differences and difficulties in the case of pharmacy, arising from trade operations, which did not exist in the case of medicine and dentistry. Hence a Pharmacy Act Amendment Bill which we print on another page, was introduced at the same time as the Medical Bill. In a general way its objects are similar, but instead of a prohibition of practice companies would be allowed to carry on the business of pharmacy so long only as it is conducted *bona fide* by a registered pharmaceutical chemist or chemist and druggist.

We are advised that the Lord Chancellor's Medical Bill is not intended to interfere with friendly societies legitimately constituted, nor will it have any such effect.—*British Medical Journal.*

The Companies (Medical Profession) Bill.

OUR readers will have seen in *The Lancet* of April 1, under the head of Parliamentary Intelligence, that the Lord Chancellor has introduced into the House of Lords, a Bill entitled, "Companies (Medical Profession) Bill," the object of which is to prohibit the profession or business of physician, surgeon, dentist, or midwife being carried on by a company. The title and the Bill itself are a model of brevity. The whole consists of four paragraphs—title and clauses all included. The one essential clause runs as follows:—

"It shall be unlawful for a company under the Companies Acts, 1862 to 1898, to carry on the profession or business of a physician, surgeon, dentist, or midwife, and if any company contravenes this enactment it shall be liable on summary conviction to a fine not exceeding £5 for every day during which the contravention happens."

There is much public feeling on the subject of limited liability companies and the sins which are committed under the legislation which was meant to regulate them and make them a public benefit. There is much difference of opinion, also, on the question as to how far the development of the principle of incorporation for commercial purposes has been an advantage. But on one point there does not seem room for any difference of opinion—viz., that the principle of incorporation was never meant to be used to legalise an action on the part of a member of a limited company which would be illegal and punishable if committed by the same individual in a private capacity. It is illegal, for example, for any individual not called to the bar or qualified as a solicitor to act as a barrister or as a solicitor. And so far as we are aware the most audacious exploiters of the principle of incorporation, or rather of its application to the practice of professions by individuals not possessed of the legal qualifications for such practice, have not attempted its application to the practice of the law. But an outrage not less scandalous has been committed by companies in assuming, in utter defiance of the Medical and Dentists Acts, the styles, titles, and functions of the medical profession, although no members of the profession were included in their membership. They have done so with impunity hitherto because the penal clauses of these Acts apply to "persons" not to a company. It would take up too much of our space to give particular instances, but such instances may be found in the volume of Minutes of the General Medical Council for 1898, in Appendix xiv., where the whole action of the General Medical Council and of other bodies on this subject in recent years is described.

To ordinary intellects it will not appear very clear why the law which requires qualification in barristers and solicitors is so much more difficult to defy than that which requires qualification in medical men. But the courts have given decisions which enable any group of illiterate and uneducated persons to carry on the business of medical men or dentists without the personal qualification which in individuals is supposed to be essential. The evil and the absurdity have long occupied the attention of various bodies, including the British Medical Association, the British Dental Association, the Medical Defence and Protection Societies, the Royal College of Veterinary Surgeons, and the Pharmaceutical Society of Great Britain. The profession is specially indebted to the Companies Acts Amendment Bill Committee of the General Medical Council, consisting of Sir William Turner, Mr. Horsley, Mr. Tomes, and Mr. Tichborne, who very particularly brought to the notice of the Council the action of a drug company in Cork registered under the Companies Acts, which had intimated that "one of its objects was to carry on the business of physicians and surgeons." Among the signatories of the memorandum of this Association there was no qualified medical man and not even a qualified pharmaceutical chemist. The grievance thus displayed was practically admitted by a Departmental Committee of the Board of Trade which, under the presidency of Lord Davey, had the matter under its consideration. There was, in fact, no possibility of denying the absurdity of a state of the law which enabled persons who might have been fined for practising medicine or dentistry in their individual capacity to call together their friends and relatives, equally unqualified with themselves, and form a company under whose name the business of giving medical and surgical advice and assistance and medicines could be carried on with impunity. Fortunately the Lord Chancellor and several other law lords have taken much personal trouble to amend this absurd and discreditable state of the law.

The present Bill is the outcome of this trouble. Opinion will be divided as to the form and probable efficiency of the remedy. Attempts have been made previously to embody clauses in Companies Bills or in Pharmacy Bills which would have met this acknowledged evil. The opinion has been strongly held by some that as the mischief has been done by an abuse of the Companies Acts and a misapplication of the principle of incorporation, any remedying clause should be embodied in an amending Companies Act. Theoretically this would seem desirable, but many difficulties would have to be overcome before such a Bill would pass, or before an effective clause could be put into a Medical or a Pharmacy Bill dealing with such totally different matters. We are therefore grateful for a special Bill correcting directly the defects of the Companies Acts so far as the practice of medicine, surgery, dentistry, and midwifery is concerned. The essential clause of the Bill enacts such an obvious principle that any effective opposition to it is scarcely imaginable. We would suggest the addition of the words, "or any member of a company in its name" after the words "the company" in the first line of the above clause. Possibly they are superfluous, but we are dealing with a class of persons who singularly combine stupidity with audacity, and we venture to think that this addition would tend to make them more cautious in attempting to evade the law than they would be under the present form of the clause. As laymen, too, with sad experience of the evasibility of Acts of Parliament, we venture to ask for the insertion in the above clause after the figures "1898" of words to this effect: "All other Acts notwithstanding." We know how completely baffled the General Medical Council has been in getting into its hands fines inflicted in the metropolitan area under the Medical Acts by reason of the competition of the Metropolitan Police Acts.—*Lancet.*

Pain after Extraction of Teeth.

By MUDR. ARTHUR SCHEUER, ZAHNARZT, TEPLITZ.

(From *Prager Med. Wochenschrift*, xxiii., No. 21, 1898.)

EVERY dentist, every practising physician who is extracting teeth, knows that after extractions made necessary on account of irritation of the recently inflamed pulp, no "after-pain" is experienced; he knows that extractions after chronic periostitis are often accompanied by slight pains, which soon disappear. He knows that, in the presence of a severe abscess, the cause of the pains, of the swelling, is removed with the extraction of the diseased tooth, but that excruciating pains often continue for hours.

The patient is advised to rinse with warm water, but presently returns and demands a radical cure for the pains that still torture him, in spite of the extraction. We syringe the alveolus with hot water, with a warm carbolic acid solution; the pain abates somewhat, but continues to torment considerably for hours after. And yet we possess an excellent remedy which will almost instantly stop the pain after the extraction of such diseased teeth.

The text-books at hand entirely ignore pain after extraction. The text-book of Prof. Dr. von Mettnitz, Vienna, 1891, mentions only extensive hæmorrhages after extractions, and the monographs of Prof. Dr. F. Busch, and Prof. Dr. Hollander, "Die Extraction der Zahne" (Extraction of Teeth), consider only the *technique* and indicate position. Only the "Handbuch der Zahnheilkunde," edited by Prof. Geo. Scheff, Vienna (Holder, 1892), vol. ii., part 2, p. 243, gives us explanations which Paul de Terra, Zurich, quotes in his book, "Repetitorium der Zahnheilkunde," the question, "What is the so-called Zahnluckenschmerz" (pain of gaps between teeth), thus: "The pain after extraction, or more correctly neuritis of the alveolus, will generally be found in an inflammation of the continuation of the alveolus, especially in periosteal affections. The rending of the periosteal nerves, the pulling and expansion of the osseous walls, an insignificant, scarcely apparent fracture, may contribute to the 'Zahnluckenschmerz' that may torture the patient for days. Often also the cause is to be found in the gum protruding over the sharp alveolar ridge, that becomes liable to inflammation from the constant friction. Therapy can do little here, and treatment of this affection is rather palliative. The pains cease after a short time. Rinsings with ice water, incisions in the gum, subcutaneous morphine injections, antipyrin taken internally, &c., may be employed for the worst pain."

The English and American dental journals make frequent mention of the pains after extractions and many suggestions were made and remedies given for removing them.

Ellis Canning, in the *Dental Cosmos*, 1892, recommends rinsing of the alveolus with a hot carbolic acid solution, 15 in 100, and according to the *Western Dental Journal*, 1894, amyl nitrite and nitro-glycerine ought to be in every operating room, the first for inhaling, the latter to be given internally, a drop of a 1 per cent. solution in a glass of water. Dr. Genese, in *Items of Interest*, 1893, recommends the use of a preparation of one part chloroform with three parts pyrethrum tincture. Dr. Chupein, in *Dental Office and Laboratory*, recommends cotton pellets dipped into aconite and chloroform into the socket.

Concentrated Carbolic Acid after Extraction.—For about five years I have after every extraction, with subsequent pains, wiped the alveolus with concentrated carbolic acid. For this purpose I wrap around the dental tweezers, after curving them at the point, a little Bruns (?) cotton ; dip it into carbolic acid carb., and thoroughly wipe every part of the socket. Success is almost always certain, even after hours of pain ; the latter ceases suddenly, and this experience I have often had with patients that came to me from the surrounding territory of Teplitz. Care must of course be taken not to touch any part of the face, and have the patient rinse immediately after the application. If the exterior part of the mouth has been touched accidentally, it should be washed with water immediately and afterwards painted with alcohol.

After the application in above described manner, undiluted carbolic acid for pain after extraction, no evil effects will appear, as I have myself observed in thousands of cases. Dr. Oscar Allis, of Philadelphia, in *The Polyclinic*, 1897, based upon repeated operations, also claims that even an excess of undiluted carbolic acid in abscess cavities, exposed tissues, burns, &c., is less dangerous than a diluted solution.

At the Naturalists' Congress, at Vienna, in 1894, I have personally communicated this method of using concentrated carbolic acid, and later on repeatedly spoken of it at dental meetings, but have not heard anything with the exception that Surgeon Dr. von Reuss, Billin, has completely confirmed my observations.

The action of carbolic acid as an analgesic is well known, since it is contained in all pastes for devitalising the pulp. The Rossler mouth wash, so popular in Austria, is an alcoholic solution of carbolic acid, and those grumbling aches at the necks of exposed roots disappear after the use of a mouth wash containing carbolic acid.

If my method of treating the pain after extraction is practised by many a dentist and physician, I shall be pleased to receive reports of their experiences.—*Items of Interest.*

A Method for making Seamless Gold Crowns.[1]

BY DR. MARK HAYTER (DALLAS, ORE.).

MR. PRESIDENT, AND MEMBERS OF THE OREGON STATE DENTAL ASSOCIATION,—I will attempt to describe to you a method I have devised for making seamless gold crowns. The tooth or root to be crowned is prepared in the usual manner, and measured with a thin strip of copper or a fine wire. Select a draw-plate punch that will just pass through the measure and lay to one side for future use; cut and straighten the measure; from a piece of well-annealed copper plate (the same gauge as the gold used in the draw-plate) cut a strip the length of the measure and about three-fourths the width the finished crown is to be in length. Bend this strip, bringing the ends together, and solder; this can be done with silver solder over an alcohol lamp or gas-jet. Shape and fit this band to the tooth, trimming the edge so that it will pass under the free margin of the gum; also trim the other edge, if necessary, to prevent the opposing teeth from interfering when in occlusion. Remove the band, and with suitable pliers give the desired contour. Use vaseline in oiling the tooth on which the crown is to be placed, as also the opposing teeth, and place the band in position, wedging if necessary to keep in place. Fill with quick-setting plaster, and have the patient close the jaws and keep them so until the plaster sets. This gives the correct occlusion. Remove the band and trim the plaster to represent the remaining portion of the crown. This band and the plaster combined give the outward form of the finished crown. I call this the "crown form." Finish filling the band with plaster or moldine, and into this insert a burnt match, wood toothpick, or anything by which it can be most conveniently handled. Pour a rubber ring about an inch deep nearly full of fusible metal, and into this press the "crown form" full length, occlusal end down. Remove the plaster, and with a medium-sized wheel bur make a groove in the metal around the upper edge of the band. Pinch the band together and remove. The mould for the crown is now complete. Draw a cartridge of gold to the size of the punch previously selected, and shape it so that it will enter the mould. Into this, with suitable punches, drive shot and cotton until it is swaged to the form of the mould. A little oil dropped into the shot before the swaging is commenced will prevent them from being driven into a solid mass, and makes their removal an easy matter. Place the mould in a ladle and melt away from the crown. Trim the neck of the crown to the line made by the groove in the mould, polish, and if the work has been done carefully, it is ready to be cemented to place.

When crowning a tooth to be used as an abutment in bridge-work, if but little, if any, of the occlusal surface is missing, the method differs from the above in the following respect: After shaping the tooth and fitting the band, with modelling compound take the bite, and, if the band does not come with it, remove, place in proper position, pour each side, and place in a crown articulator. After the plaster has set remove the compound and varnish the opposing teeth, place a little fresh-mixed plaster upon the end of the tooth within the band, close the articulator, and allow it to remain so about five minutes. Open and trim the plaster to the desired shape; then cut the "crown form" from the cast and proceed to finish as first described.

As you may have noticed, this method is made up in the main from parts of other methods. About the only original feature claimed is the sinking of the "crown form" into the fusible metal full length, thereby making a mould or counter-die in which the crown is formed.

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[1] Read before the Oregon State Dental Association, December 15, 1898.

The merits claimed for crowns made by this system are perfect occlusion, proper contour, accurate adjustment, and the ease and rapidity with which the work can be done.—*International Dental Journal.*

Benefits of Dental Society Meetings.[1]

By Dr. D. E. DELZELL (Logansport, Ind.).

Association stimulates ambition, develops the intellect, and makes one more bright and companionable. This is true of the professional as of the social side of life.

Man is a social being ; he has advanced under social conditions and there is in the professional, as well as in the mental and moral life, profounder reasons for association as a means of education and professional growth than there are for mere material ends, and the time has come when we cannot afford even in a pecuniary sense to ignore associations. There is a communication of mind with mind in which probably all who associate with one another participate, however unconsciously. There is not an individual, however humble, that he does not have some influence, and when we put our minds in concord with others, when our hearts vibrate in harmony with them, how much we can do for the benefit of each other.

Association gives a man greater power for growth. The growing man learns something from everything he sees or hears ; nothing can touch him that does not teach him. The power to grow is fed by nothing so much as keeping the mind open to every possible suggestion from every possible source. "To surrender oneself to the education of life is to receive and give in the largest measure."

Progress is the eternal law of nature, and in this progressive age, with the rapid strides our profession is taking, it is necessary for us to keep wide awake and use every energy at our command in order to keep in touch with it. It takes a better dentist to make a financial success now than it did ten years ago, and ten years hence the man who sticks to the methods now in vogue will find himself more of a back number than are the laggards of to-day.

The dental society largely contributes to the fraternal intercourse and good fellowship of its members ; the interchanging of ideas through papers, discussions and clinics, increase our knowledge, and is a well recognised avenue through which the standard of our profession is brought to a higher plane to not only the members but to the world at large. Here it is that men of brains and genius professionally show their light, and what is their knowledge becomes through the dental society the knowledge of all of its members. It will be found that the leaders in any profession are the leaders in associations for the advancement of their chosen profession, be it what it may.

The ministers have their associations, the lawyers theirs. In fact all callings in life have their societies. He who scorns associations necessarily places himself beyond the reach of progress ; he will get into a rut and the probabilities are he will stay there.

Isolation dulls ambition, breeds selfishness, suspicion, distrust, until all the better feelings are blunted or destroyed. I well remember the twenty-fifth anniversary of the Chicago Dental Society some years ago, and it was one of the grandest meetings I ever had the pleasure of attending. At that meeting I saw a great many of the shining lights of the profession from almost every State. Now, to see those men and hear them talk was to me a satisfaction worth many times the cost of time and money that I sacrificed in going.

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[1] Read before the Indiana State Dental Association.

Personally, I feel that I owe much of whatever success I have attained, to attendance of society meetings. Without them I know not where I would be, and I think that if the profession generally, I mean those that are not in the habit of attending, could be brought to realise the benefit to be derived from attending these meetings, there would be many more of them in attendance than there are generally.—*Indiana Dental Journal.*

Removal of a Tumour of the Ascending Ramus of the Lower Jaw.

THE same surgeon (Mr. Anderson) operated on a boy, aged 14, a fairly healthy-looking lad, who had noticed six months before a swelling of the left side of the lower jaw. This gradually increased, but without causing much pain or inconvenience. The tumour involved the whole of the ascending ramus up to the sigmoid notch. It was fusiform in shape, about two inches in thickness from without inwards, the inner surface was hard, as though covered with a shell of bone, the outer surface was soft, no glandular enlargement was found, and there were no indications of secondary deposits. He commenced the operation by making an incision from the angle of the mouth downwards to the angle of the jaw, then curving upwards in the direction of the mastoid process ; the flap so formed was reflected with the parotid and the superficial fibres of the masseter, which, apparently uninfiltrated, were stretched over the tumour ; the bone was sawn across from behind the second molar tooth downwards in front of the insertion of the masseter, this was then seized, turned upwards, the fibres of the internal pterygoid being cut across ; the coronoid process was divided with bone forceps, and the bone was disarticulated from the inner side ; the diseased portion of bone could now be detached by a few touches of the knife, leaving the parotid intact. The bleeding vessels were secured as soon as divided, the loss of blood being only moderate. On examination of the tumour it appeared to be an endosteal sarcoma, which had distended the bone on the inner side, but had escaped from it on the outer side ; it presented the characters of a myeloid, and was afterwards found to be of this nature. Mr. Anderson said that in the absence of infiltration of the tissues the operation was not one of great difficulty, and the prognosis, on the diagnosis of endosteal sarcoma, was decidedly favourable. The chief difficulty would be, he considered, in relieving the deformity which would arise as a result of the unbalanced action of the masticatory muscles of the opposite side ; it was a problem that at present remained unsolved to keep the teeth of the lower jaw in their correct position with regard to those of the upper, although Mr. Birnie and others had devised various ingenious appliances, and this would be a matter for consideration during the following weeks in the present case.—*Medical Press.*

Editorials.

The Annual General Meeting.

April showers and their accompanying brief bursts of sunshine remind us of the approach of May, the queen of months, and the month of queens. With May come the bright skies and the blossoms, and the Annual General Meeting of the British Dental Association, whereat business and pleasure meet together on equal terms, and join hands upon the threshold of dental science. Business of a general nature promises well. One question of importance which will occupy the attention of the meeting is the Companies (Medical Profession) Bill, an account of which appears elsewhere in these pages.

We are glad to say that the financial position of the Association is in a flourishing state; a glance at the balance sheet published in our last issue will show that the retiring treasurer will be able to hand over to his successor, who will be elected at the meeting, a substantial reserve fund wherewith to meet possible emergencies.

There will be no report from any Schools' Committee this year, as the old Committee terminated its labours last autumn. Doubtless the work of that Committee, as embodied in its several annual reports, will be issued at a future date in compact form, as ordered at the last Annual General Meeting. We understand that a meeting of the School Dentists' Society, which has practically taken up the work of the old Schools' Committee of the British Dental Association, will be held in Ipswich during the meeting of the Association.

Mr. Hunt, of Yeovil, who has so successfully and efficiently fulfilled the duties of President during the year, retires with the heartiest good wishes and congratulations of all, leaving us to extend a cordial welcome to his successor, Mr. Mummery, than whom none is better fitted to take the office.

The address of the President of the Microscopical Section, Mr. J. J. Andrew, will, it is safe to predict, show a practical side.

Mr. Andrew is one of those unhappily rare individuals who have contrived to carry on elaborate scientific research in the midst of a very busy practice.

On the social aspects of the meeting we have already dwelt in some degree in our last number, but amongst fresh matters upon the programme we chronicle the following, viz., a generous invitation upon the part of Mr. A. F. Penraven, one of our members resident in Ipswich, to members and ladies to join him in an excursion by steamer down the River Orwell on the afternoon of Saturday, May 20; and a further invitation to a limited number of members to a yachting trip on Whit Sunday, starting from Felixstowe. We have little doubt but that both these offers will be well responded to. Then we notice for the first time in the programme an attempt to introduce amongst the pleasures of the meeting the all-popular game of golf in the form of a match between "Ipswich and the British Dental Association." It is to be hoped that our playing members will enter the lists and make a good match of it.

The ladies will not be neglected, for amongst other entertainments at which they will be welcomed we observe that it is proposed to book seats for them at the Ipswich Lyceum Theatre, to witness a performance of "The Liars," on Whit-Monday evening, whilst the Association Dinner is in progress. And lastly, there is the President's Conversazione, to conclude the meeting on the afternoon or evening of Tuesday, May 23, as may be decided upon, but the details of this function are not yet to hand.

The Exhibition of Dental Instruments and new apparatus which is to take place in the Public Hall daily during the Meeting promises to be a good display. A larger number of exhibitors than usual have asked for space.

Turning to the papers to be read at the meeting, they will be found of much interest, both in the general and microscopical sections and, doubtless, they will be still further enhanced in value by the discussions which may be expected to follow them. As is usual at this time of year, the number of papers read at Branch meetings and published in these pages has been comparatively small, and we can only hope that this points to the accumulation of a store of energy on the part of members, the gates of which may be widely opened to us at the coming meeting.

The demonstrations, although at present not comprising a large list, may be expected to increase between now and the time of the meeting, as the interest of members on the approach of that event may be aroused, and as their desire to add to the success of the occasion may stimulate them to further efforts on behalf of their fellow members and the Association generally. We would like to emphasise the request made by the Hon. Secretary in former numbers of the Journal, that members should notify him of their desire to give demonstrations by asking those gentlemen who have subjects of interest to bring to the notice of the Association, to make up their minds as speedily as they can, and thus to render him that assistance which is so welcome and withal so necessary at such a time.

The hearty co-operation of all is of course well assured, and this being so, it goes without saying that a successful and an enjoyable meeting is certain to ensue.

A Duty One owes to One's Profession.

In a short time the Legislature will be considering a measure *The Companies* (*Medical Profession*) *Bill* which will gravely affect those who live by practising dental surgery. Before the Bill is discussed in the House of Commons every member of the British Dental Association should consider that his own individual action may help forward this most important measure, according as he desires to benefit his profession, by urging personally upon the member of Parliament for whom he votes, the importance of supporting the measure. The short Bill, the text of which may be found at p. 211, is intended to render applicable to companies the restrictions against unqualified practice which can already be enforced against individuals, and so is of importance as protecting the public against imposture. The matter is very simple and may be explained in very few words. Hitherto a "company" has been held to be free from the restrictions imposed upon a "person" by the Acts of Parliament regulating professional practice. Now a "company" may consist of any seven persons, members of one family or otherwise, and the expense of forming it is nominal, while the liabilities of its members are limited; so that anyone may turn himself into a company, and thus without outlay or risk procure for himself an opportunity to infringe these Acts in security and convert himself into a man of straw at the same time. This absurdity it is proposed to remedy. Companies are to be prevented from practising, and the public will thus be protected from a very dangerous form of swindle, and dentistry relieved from the reflected disgrace which improper practice inflicts upon the profession at large.

The Classification of the Forms of Dentine.

THE recent controversy between two high authorities on dental anatomy in the *Anatomischer Anzeige*, a translation of which has appeared in our pages, is of considerable interest from a scientific point of view.

The classification of the forms of dentine adopted by Mr. Charles Tomes in his "Dental Anatomy" has been received hitherto, both in this country and abroad, as the most convenient classification of these tissues, and the one which appears to be most in accord with existing knowledge.

Dr. Röse, of Munich, whose excellent work in dental histology during the last few years is so well known to all workers in this department, as well as to the comparative anatomist, has suggested a new classification. He would define true dentine, the hard tubular variety, as dentine formed under an epithelial sheath; he would form a new division which he would call "trabecular dentine," including under this head osteo-dentine and plici-dentine; he would designate the external hard, apparently structureless layer (seen in the hake, pike, and many other teeth), vitro-dentine, and he would retain the division vaso-dentine as defined by Mr. Tomes.

Dr. Röse would define true dentine as dentine formed under an epithelial sheath; but, as pointed out by Mr. Tomes, this definition may be very misleading, as in the case of "carcharias," in which a tissue in every way corresponding with a true dentine is not developed under an epithelial sheath; so that we are in the position of either calling what is, in all histological particulars, a true dentine, by some other name, or concluding that Dr. Röse's definition is not a good one, as it does not apply in all cases.

There scarcely, also, seems to be sufficient reason for discarding the term plici-dentine—a very convenient term for those forms of hard dentine in which the tube systems radiate from a folded pulp cavity—and the inclusion of this variety in the somewhat confused division of trabecular dentines.

We must say that it appears to us, from a perusal of the papers, that Dr. Röse has failed to establish his new system of classification as superior, either in point of scientific accuracy or convenience, to the one with which we are already familiar.

The Teeth of Recruits and School Children.

It is interesting to read what is said on the important subject of dentistry for the services and schools. The *Army and Navy Gazette*, in its issue of April 1, says:—

"Mr. Wyndham in his speech on the Army Estimates stated that a good many would-be recruits were rejected on the ground of bad teeth, and suggested that in elementary schools supported by public funds it might be possible to teach the pupils to take precautions for the preservation of their teeth. The president of the School Dentists' Society, writing on this subject, points out that something more practical is required than Mr. Wyndham's suggestion. An examination has lately been made of 10,000 mouths of British children of an average age of twelve years, and it was found that 85 per cent. required operative treatment. Some of the metropolitan boards of guardians, we learn, have already appointed dental surgeons to carry out the necessary skilled treatment at their schools. Many of the boys go into the Army and Navy, and, as this authority says, 'it is not too much to say that, if it had not been for the dental attention received in these schools, Mr. Wyndham's figures would have been still worse.' The case of the officers is no less important than that of the recruits, and instances are common in which candidates, after an expensive preparation, have failed to pass their 'physical' on account of deficient dentures. The authorities of some of our public schools make provision for combating, to some extent, the results arising from neglect in this department of persomal hygiene."

Correspondence.

We do not hold ourselves responsible for the views expressed by our correspondents.

Brittle Platinum Pins in Porcelain Teeth.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—At the risk of being thought tiresome, I appeal again most earnestly to our members to send Mr. Murray and myself examples of brittle pins in porcelain teeth, that have dropped off in use. A few examples have come to hand since my last letter, from dentists who have been victims of this disastrous defect. They are not in sufficient quantity to support the investigation as we would like.

I have just received some valuable information in a letter from my friend Dr. John Egbert Nyman of Chicago, in which he has also enclosed a sample of platinum, which can be cracked by the use of the blow pipe! His information coincides with the result of Professor Hartley's physical examination.

We intend bringing this subject before the Annual Meeting in Ipswich. We are therefore anxious to obtain the most accurate and complete information to place before the members.

I am, yours faithfully,
W. BOOTH PEARSALL, F.R.C.S.I.

13, *Upper Merrion Street.*
Dublin, Ireland.

Association Intelligence.

The Honorary Secretary of the Association desires to emphasise the statement he has on several occasions previously made, viz., that anonymous communications relating to cases of irregular practices, or alleged infringements of the Dentists Act, cannot receive from him that attention he would wish to bestow upon them, or they may deserve.

PROGRAMME.
Annual General Meeting,
TO BE HELD IN IPSWICH.

Friday Evening, May 19.

Informal Reception, Crown and Anchor Hotel (Music and Smoking).

Saturday Morning, May 20.

Meeting of the Representative Board and the General Meeting in the Town Hall. Presidential Addresses.

Afternoon.

Papers and Discussions.

River Excursion, at Mr. A. F. Penraven's invitation.

Evening.

Reception by the Eastern Counties Branch at the Town Hall (Music—Dancing).

Whit Sunday.

Mrs. Fenn Cole at home "afternoon tea." President of the School Dentists' Society "at home" (evening).

Whit Monday, Morning, May 22.

The Benevolent Fund Meeting and the Microscopical Section's Meeting in the Town Hall.

Afternoon.

Demonstrations in the Public Hall.
Golf Match.

Evening.

The Annual Dinner of the Association at the Town Hall
Ladies' Entertainment at the Lyceum Theatre.

Tuesday, May 23.

Demonstrations, Papers and General Business. President's Conversazione.

GOLF.

BY the kindness of the Captain (Dr. Wood) and members of the Ipswich Golf Club, the excellent links of the Club, two miles from the town, will be at the disposal of members for a match, *e.g.*, the "British Dental Association *v.* Ipswich," on the afternoon of Whit Monday. Mr. R. H. Woodhouse has kindly agreed to captain the British Dental Association team, should it be possible to get one together.

Playing members likely to attend the meeting and who are willing to help in this matter, are requested to send in their names and handicap scores to Mr. Woodhouse, 1, Hanover Square, London, W., at their earliest possible convenience, so that arrangements may be completed.

Hotels.

The social head-quarters of the British Dental Association will be at the Crown and Anchor, Westgate Street.

Other hotels in Ipswich are recommended in the following order:—
The Great White Horse (of Pickwick fame), Tavern Street.
Grand Hotel, Buttermarket.
Golden Lion, Cornhill.
Waterloo (Temperance), Princes Street.

The local Hon. Sec. of the Arrangements' Committee is preparing a list of apartments to be recommended, and this will appear in the next number of the Journal.

At Felixstowe, sixteen miles from Ipswich, the Bath and Station Hotels are recommended.

BUSINESS PROGRAMME (Preliminary Report).

Presidential Addresses of Mr. W. A. Hunt and Mr. J. Howard Mummery.

Executive Reports and general business.

Papers (*General Section*).

By A. S. Underwood, M.R.C.S., L.D.S.Eng., on "Porcelain Inlay Work."

By F. J. Bennett, M.R.C.S., L.D.S.Eng., title not announced.

By J. G. Turner, F.R.C.S., L.D.S.Eng., on "Chronic Abscess," &c.

By T. E. Constant, M.R.C.S., L.R.C.P., L.D.S.Eng., on "The Trophic Function of the Dental Pulp."

By J. O'Duffy, L.D.S.I., on "Twenty-five Years' Experience of my Annual Diagrammatical Dental Report System in Schools and Colleges."

Paper by the Curator of the Ipswich Museum.

By W. Booth Pearsall, F.R.C.S.I., and G. M. P. Murray, F.R.C.S.I., on "Brittle Platinum Pins in Porcelain Teeth."

Demonstrations (*General Section*).

By W. H. Breward Neale, L.D.S.I. (*a*) on "A Method of Constructing Partial Lower Dentures with Special Reference to Prophylactic Conditions;" (*b*) "Regulation Case showing Treatment of Superior Protrusion at an Early Age."

By Leon Williams, "Porcelain Inlays."

By R. P. Lennox, (*a*) "A Nose-piece for prolonging Nitrous Oxide Anæsthesia by Dr. Paterson's Method;" (*b*) "A Pair of Pliers of Original Design for carrying and adjusting a Copper Strip to a Root preparatory to crowning it by the Fusible Metal Mandrel Method;" (*c*) "A Method of taking Impressions of the Lower Jaw with Composition, without drags, in cases where Molars and Bicuspids lean towards each other across a Gap."

By Vernon Knowles, L.D.S.Eng., "Further Improvements in the Composition Swaging Flask, and New Metal for Polishing Plates."

Papers (*Microscopical Section*).

By K. Goadby, L.D.S.Eng., Bacteriology, title not announced.

By Leon Williams, D.D.S., L.D.S.Eng., title not announced.

Microscopical Section.

(Demonstrations by lantern and otherwise.)

By J. Howard Mummery, M.R.C.S., L.D.S.Eng.

By A. Hopewell Smith, M.R.C.S., L.R.C.P., L.D.S.Eng.

By Mons. Jules Choquet (D.E.D.S.), Paris.

Mr. Lees Curties (London) will be in charge of the Microscopical Exhibition.

EXHIBITS.

Exhibition of Dental Instruments and Appliances in the Public Hall by Messrs. Ash & Sons, The Dental Manufacturing Co., The Harvard Dental Co., The Flint Edge Gold Alloy Co., The Dental Therapeutic Co., Edwards & Co., and others.

LOCAL ARRANGEMENTS COMMITTEE.

Hon. Sec.—Mr. Norris Snell, 11, Museum Street, Ipswich.
Chairman.—Mr. Fenn Cole.

N.B.—Members willing to read papers or give demonstrations in the General Section are requested to communicate with

W. B. PATERSON, *Hon. Secretary.*

MICROSCOPICAL SECTION.

President: Mr. F. J. BENNETT.
President-elect: Mr. J. J. ANDREW.

NOTICE.

The seventh meeting of the Annual Microscopical Section of the British Dental Association will be held at the Town Hall, Ipswich, on Monday, May 22. Members desirous of reading papers or exhibiting specimens are asked to send in their names either to the President, Mr. F. J. Bennett, 17, George Street, Hanover Square, or the Hon. Secretary, Mr. A. Hopewell Smith, 26, Berkeley Square, W.

Scottish Branch.

THIS Branch held its usual spring meeting in the Dental Hospital, Glasgow, on Saturday, February 25, at 3 p.m. Amongst those present were:—Messrs. C. Rees Price (Glasgow), President; W. Bowman MacLeod (Edinburgh); John A. Biggs (Glasgow); Wm. Taylor (Glasgow); J. G. S. Angus (Glasgow); J. C. Gardner (Glasgow); Wm. Wallace (Glasgow); R. S. Grant (Glasgow); J. S. Amoore (Edinburgh); Sewell Simmons (Edinburgh); E. J. Wallis (Alloa); J. C. McCrindle (Glasgow); Jas. Hepburn (Glasgow); J. H. Stromier (Glasgow); Wm. Vicar (Glasgow); D. R. Campbell (Edinburgh); F. Page (Edinburgh); A. K. Finlayson (Edinburgh); N. Macqueen (Hamilton); A. M. McCash (Glasgow); W. H. Williamson (Aberdeen); A. H. Bain (Galashiels); J. S. Durward (Edinburgh); Jas. Stewart (Coatbridge); John Stirling (Ayr); W. F. Martin (Glasgow); A. B. Young (Glasgow); D. M. Marshall (Stirling); J. M. Macmillan (Glasgow); W. D. Anderson (Glasgow); Thos. Wilson (Glasgow); A. Heron (Elgin); J. Dunlop (Kilmarnock); Alex. Cormack (Edinburgh); Thos. Dykes (Dumfries); P. S. Walker (Dundee); Jas. P. Thomson (Glasgow); W. W. Dickie (Glasgow); D. Baillie Wilson (Edinburgh), &c., &c.

The following demonstrations were given, and they passed off in a manner extremely satisfactory to onlookers, demonstrators, and patients:—(1) Mr. J. A. Biggs (Glasgow), "Administration of Gas and Chloroform." (2) Mr. J. M.

Macmillan (Glasgow), (*a*) "Administration of Gas and Oxygen; (*b*) "Mr. Vernon Knowles' method of Swaging Tin Plates, using a New Flask with Improvements suggested by Mr. Thos. Wilson."

The President, Mr. Rees Price, then took the chair, and the meeting proceeded to transact the ordinary business.

After the minutes of the previous meeting had been duly read and confirmed, Messrs. J. Craig-Cameron, L.D.S.Edin. (Edinburgh), and Jas. P. Thomson, L.D.S.Glas. (Glasgow), both members of the British Dental Association, were proposed and seconded for membership in the Branch, and fall to be balloted for at the next meeting, while Mr. John Girdwood (Edinburgh) was unanimously elected a member.

Messrs. A. K. Finlayson and D. Robertson Campbell were appointed to audit the accounts for the past year, and the Council's recommendation, that the Annual General Meeting should be held in Inverness on June 23 and 24,[1] was submitted to the meeting, and met with general approval.

Dr. T. Kennedy Dalziel (Glasgow) then proceeded to give his Notes on Two Cases, in each of which he had been compelled to remove the right half of the superior maxilla for malignant disease. The interest of this communication was greatly enhanced by the presence of the two patients, and members were much interested in the means taken to restore the features, and in the very successful manner in which distortion had been avoided.

Proceedings were brought to a close with cordial votes of thanks to the demonstrators and Dr. Dalziel, after which members adjourned to Smith and White's Restaurant, where over thirty sat down to dinner under the chairmanship of Dr. W. H. Williamson (Aberdeen).

Midland Counties Branch.

LEEDS AND DISTRICT SECTION.

THE fourth meeting of the Second Session of the Leeds and District Section of the Midland Branch of the British Dental Association was held at the Leeds School of Medicine on Tuesday, March 21, Mr. GADDES, the President, in the chair. The subject for discussion, "Retention of Dentures," was ably introduced by Mr. A. P. Wallis (Doncaster).

Mr. RIPON supported Mr. Wallis' views as to retention in the mouth of roots or teeth to support dentures. He found vela rubber unsuited for suction cases.

Mr. GADDES spoke favourably of the Fulsom ridge and wings.

Mr. W. R. BIRKETT drew attention to the fact of the elongation of solitary teeth, especially canines, causing a very disagreeable appearance; he also mentioned a case where springs were essential.

Mr. HEADRIDGE advocated the use of scientifically constructed bands, that is, a band made by burnishing a thin strip of platina on the tooth, and covering with gold by fusing. He condemned the use of wire bands, having found that they cut into the teeth on which they are adjusted.

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[1] Since the above meeting was held it has been found necessary to alter the date of the Annual Meeting. Members are requested to note that it will be held at Inverness on *Friday*, *9th*, *and Saturday*, *10th*, June, instead of on the 23rd and 24th as originally proposed.

Mr. W. L. JEFFERSON referred to a habit he had noticed some patients had of biting on one side and so displacing the artifical denture.

Mr. J. C. BIRCH used the Fulsom ridge and also cut a groove in back edge of plate and with bicycle tyre cement fastened a piece of capillary rubber tubing in the groove; he had used hundreds of Leman's suction valves with satisfaction.

Mr. E. J. LADMORE used the Fulsom ridge and believed in vacuum chambers, because a soft pad of tissue grew down into the chamber and so relieved the pressure on the median line.

Mr. A. B. WOLFENDEN would rather make the teeth which were banded last as long as possible and *then* crown them, instead of cutting off a sound tooth and crowning the root for the purpose of banding.

Mr. S. MITCHELL mentioned a case which it was impossible to manage without springs.

Mr. BRUNTON, Mr. YOUNG, Mr. TAYLOR, Mr. LODGE, Mr. SAVILLE, and others took part in the discussion.

Mr. WALLIS replied, enforcing points 1, 2, 3 and 4, and drew attention to the practitioner's duty to do the very best he can for his patient.

The adjourned discussion was then taken on Mr. T. Headridge's paper on "Vulcanite Work."

Mr. HEADRIDGE gave a brief summary of the points of his paper, referred to the manufacture of rubber, the discovery of hard rubber by Dr. Evans, of Paris, in 1867, as set forth in a *brochure* shown by Mr. Headridge; the selection of the best rubber for dentures; the arrangement of full dentures; the real and the ideal types, close bites, construction of obturators, flasks with inner rim to prevent plaster from being blown out during heating. He referred to the long-faced type of patient, and mentioned a case which he had shortened three-quarters of an inch.

Mr. E. J. LADMORE preferred to keep the plaster in the flask wet, as it prevented the rubber being burnt; he complimented Mr. Headridge on the good construction of his flasks.

Mr. RIPON referred to the creeping of rubber away from teeth and plates.

Mr. JEFFERSON and Mr. LADMORE mentioned cases of warping during repairs.

Mr. BIRKETT thanked Mr. Headridge for his instructive paper.

Mr. HEADRIDGE replied, and in speaking of workshop tools, he said his preference was for scrapers instead of files, as they could be sharpened. He thought the warping of plates, more particularly in repairs, was perhaps caused by the pressure of steam formed in the flask by the wet plaster.

The next meeting will be the annual one, and will be held on April 25, instead of 18th as announced.

COMMITTEE MEETING (held Tuesday, March 21, 1899).

Present: Mr. Gaddes (President); Mr. Ladmore (Hon. Treasurer); Mr. Brunton, Mr. Headridge, Mr. Ripon, Mr. Wolfenden. It was decided to ask the Hon. Secretary to write to Mr. T. Jackson, of 23, Hargreave Street, Burnley, inviting him to exhibit his electric furnace at the annual meeting. It was agreed to take the exhibits as per list. The members are to be asked to come in evening dress as a compliment to the visitors. The form of invitation as per example was adopted. It was thought desirable that the valedictory address should be given at the first meeting of the new session.

It was proposed by Mr. **Brunton** and carried, that Mr. E. J. Ladmore, of Bradford, be nominated for president-elect.

The Annual Meetings is to be held at the Grand Restaurant, on Tuesday, April 25, at 2.30 p.m., the business meeting to be held *before* the dinner.

Central Counties Branch.

A meeting of the Central Counties Branch was held at the Medical Institute, Birmingham, on Thursday, March 23. The Council meeting took place first, and there were present :—Messrs. J. T. Craig (President), Breward Neale, Howard, Mountford, Knott, Richards, Surman, Whittles, Parrott, Donagan and Hilder.

Mr. H. E. Rose, L.D.S.I., D.M.D.Harvard, was elected a member of the British Dental Association and of the Central Counties Branch.

A resolution proposed by Mr. Knott, and seconded by Mr. Richards, *re* representation in the proposed Midland University, was carried *nem. con.*

The President announced that the extra meeting at Leicester would probably take place on the last Saturday in April.

The date of the Annual Meeting was fixed for Friday and Saturday, June 30 and July 1, in Birmingham.

At the general meeting which followed there were present :—Messrs. J. T. Craig (Leicester) ; Breward Neale, J. Mountford, Knott, Richards (Birmingham) ; Surman (Worcester) ; Whittles, J. E. Parrott, Donagan, Howard (Birmingham) ; H. R. F. Brooks (Banbury) ; A E. Apperson (Handsworth) ; F. W. Hands (Cheltenham) ; Amphlett, Joscelyne (Birmingham) ; Lankester (Leicester) ; Cale-Matthews, Hilder (Birmingham) ; A. Ward Shedden (Walsall) ; A. H. Parrott and R. W. Griffith (Birmingham).

Apologies were received for non-attendance from Messrs. Vickery and Martin Sherwood.

After the minutes of the previous meeting had been read and confirmed, a paper on "The Application of Gutta Percha in the Preservation of Teeth" was read by Mr. F. W. Richards, L.D.S.Eng. The subject proved of great interest and evoked a good discussion, in which the following members took part—Messrs. Breward Neale, Joscelyne, Lankester, Mountford and Brooks.

It was arranged that, as time proved short, the paper by Mr. H. Percy Joscelyne, L.D.S.Eng., on "Sequelæ of Alveolar Abscess," should be given at an extra meeting to be held on Thursday, April 13, at 6 o'clock.

A collection in aid of the Benevolent Fund realised 17s. Votes of thanks terminated the proceedings.

A. T. Hilder,
Hon. Sec.

83, *Edmund Street*, *Birmingham.*

Metropolitan Branch.

A meeting of this Branch will be held on Tuesday, April 18, at 40, Leicester Square, at 8 p.m.

Mr. T. Coysh will read his paper on "The Treatment of Pulps and Pulpless Teeth," which was postponed at the last meeting.

Mr. P. W. Greetham will open a discussion on the question of the action, if any, which the Branch should take in endeavouring to prevent and dissuade medical men in the metropolitan district giving anæsthetics for unregistered dentists or those who advertise.

Council Meeting at 7 p.m.

W. H. DOLAMORE,
Hon. Sec.

Southern Counties Branch.

THE next meeting will be held at the Calverley Hotel, Tunbridge Wells, on Saturday, April 22.

1 p.m.—Luncheon (at the kind invitation of the Tunbridge Wells members.)

2 p.m.—Council Meeting. Arrangements have been made for members not on the Council to visit the Borough Electric Light Works at this time.

3 p.m.—General Meeting. Papers: "Coned Inlays," by Mr. Frank Bell. Mr. Beadnell-Gill will start a discussion on Mr. Dennant's paper on "Dental Education" (see JOURNAL OF THE BRITISH DENTAL ASSOCIATION, January, p. 11).

6 p.m.—Dinner (tickets 4s. 6d. each).

FRANK V. RICHARDSON.
Hon. Sec.

Western Counties Branch.

A MEETING of the Council will be held at "The Choughs" Hotel, Yeovil, on Saturday, April 29, at 3 p.m.

AGENDA.

Minutes of last meeting, and business arising out of them.
Hon. Treasurer's report.
Date of Annual Meeting.
Arrangements for Annual Meeting.
Date of place of the autumnal meeting.
Election of members.
Other business.

At the conclusion of the Council meeting an informal meeting of members will be held.

The Hon. Sec. takes this opportunity of asking members to send him notices of removal or change of address, so that the new list of members may be as complete as possible.

T. ARTHUR GOARD.

6, *Southernhay*, *Exeter.*

Reports of Societies and other Meetings.

The Odontological Society of Great Britain.

THE ordinary monthly meeting was held on April 10, Mr. JOHN FAIRBANK, President, in the Chair.

The following gentlemen were balloted for and duly elected members of the Society:—Mr. Sydney Herbert Williams (Johannesburg), and Mr. Clarence H. Keel (Bayswater).

On behalf of Mr. Peyton Levason, the SECRETARY presented a model showing three unerupted teeth in the mouth of a girl, aged 15; and Mr. H. W. Messenger presented a set of teeth with tube teeth inserted on ivory.

Adjourned discussion on Dr. Hunter's paper, "General Sepsis in Relation to Septic Conditions of the Teeth":—

Mr. ALBERT, in opening the discussion, referred especially to mouth breathing as being favourable to gastritis. He presumed from the tenour of Dr. Hunter's paper that the cause of gastritis in connection with teeth was apparently due to the swallowing of bacteria, but he thought there must be other conditions of the mouth, apart from sepsis of the teeth, producing secondary septic conditions of the mouth, that would naturally predispose to gastritis. The researches of Dr. Sinclair Thompson showed that the upper pharynx was a practically sterile cavity, and it followed that the air in passing through the mouth was not sterilised, and he presumed that mouth breathing would produce generally infective diseases in much the same way as caries and necrosis of the teeth. He mentioned several cases of loss of memory and synovitis, which had cleared up by an improvement in the conditions of the mouth. He asked Dr. Hunter if he could mention any relation between anæmia and the teeth, or gastritis and the teeth, and raised the point of the connection of rheumatism with the condition of the teeth.

Mr. E. LLOYD-WILLIAMS pointed out that gastric irritation was often improved by the extraction of stumps long before artificial teeth were supplied, proving to his satisfaction that the gastric irritation had been very largely due to the septic condition of the mouth. There were still a great number of dentists who clung to the old idea that a root retained in the mouth in some way or other kept up the contour of the face, and some people thought that it afforded a certain amount of stability for an artificial denture. He ventured to think, however, that great care was required in treating mouths of that sort, and that it was better to err on the side of extracting all stumps which were at all suspected of setting up any septic disease.

Mr. H. LLOYD WILLIAMS mentioned two cases illustrating the case brought forward by Dr. Hunter, in which a very septic condition of the mouth was followed by a serious condition of the stomach.

The PRESIDENT considered that if Dr. Hunter's conclusion was adopted, all teeth would have to be extracted that had alveolar abscesses, and that would considerably modify the conservative treatment generally adopted. His practical experience did not lead him to take such a very serious view of the presence of pus in the mouth. With regard to the case mentioned by Dr. Hunter, he did not think that Dr. Hunter had altogether proved that it was the matter from the roots that produced the condition which he mentioned.

Dr. HUNTER, in reply, said the importance of suppuration and dead bone everywhere else in the body was recognised, and if there was a small piece of necrosed bone in the tibia which suppurated for a year or two the patient would be considered in rather an unhealthy condition. He did not wish that teeth with alveolar abscesses should be removed; the alveolar abscess could be cured, and the tooth left where it was, so that there was still scope for preservative surgery. But he looked upon dark necrotic teeth, which were of no value to the jaw, and no value to anyone, as centres of infection. Suppuration from the teeth was not so important as elsewhere, because there was a most remarkable vitality about the mouth, and there was a natural defence there against the extraordinary infections to which the mouth was liable. He entirely endorsed Mr. Albert's remarks. He always considered that an important point in the treatment of febrile cases was to keep the mouth as free as possible from soreness and general infection by careful antiseptic lotions. With regard to the connection of gastric irritation with septic conditions of the mouth, he had brought forward one concrete case. He did not wish to much stress on the particular case which he had mentioned as exemplifying any special class of cases that existed, but it was a signal-post as to what might occur in other cases. With regard to the relation between anæmia and the teeth, he had been for the last ten years collecting observations of cases showing that connection. He had had various cases of pernicious anæmia, and he had had occasion to note the most remarkable condition of the teeth in those cases. The cases he had recorded rather led him to the conclusion that the teeth must be a source of chronic poisoning.

Mr. CHARLES S. TOMES read a paper on "Two Teeth which presented unusual Diseased Conditions." The first tooth was one which was only in a moderate degree carious. It had resisted all treatment and become more and more loose and painful, until at last it was extracted. The patient was a young lady enjoying fair health. An examination of the mouth revealed very little; a few teeth were below the normal standard of firmness, and one in particular was tender in its socket, but as that was apparently a dead tooth little could be inferred as to its condition. At a first glance the tooth did not present any very striking peculiarity. But upon making a section through the tooth in its long axis, it was apparent even to the naked eye that there was an altogether unusual condition present. The crown of the tooth as far down as the neck was perfectly normal, and the pulp cavity was seen in section. But below the neck the dentine was represented only by a thin layer on the outside, which however thinned out as it went downwards, so that on the one side it only reached a short distance below the pulp cavity, whilst on the other it reached two-thirds of the length of the root. The whole interior of the root portion was solid, no trace of pulp cavity extending down the roots in the form of root canals being visible. On microscopic examination it was found to be a coarse calcified tissue, with a concentric arrangement round numerous small areas, and with a good many large spaces which were of lacunal character. The cementum was entirely absent over the portion composed of the coarse tissue. Towards the dentine in the interior of the tooth it everywhere presented those festooned outlines which were characteristic of absorption. Two hypotheses presented themselves to Mr. Tomes: one that it was the original structural formation of the tooth, the other that the tooth was originally normally formed, and that the substitution for the normal tissues of the coarse calcification was a subsequent process—the result of disease. A careful study of the conditions rendered it almost certain that the latter was the true hypothesis. At one period there must have been a mass of soft tissue which had been modelled by the persistence of the tooth socket below and towards the upper part by a shell of dentine into exactly the old form of the roots of the tooth that had swept away even the cementum and then had itself undergone a coarse and rapid calcification reproducing in a new tissue the old form. The second tooth was one which might almost be described as an earlier stage of the same disease. It was a lower wisdom tooth, and great pain was complained of by the patient. The wisdom tooth was extracted. None of the appearances of caries were discovered by microscopic examination, but the walls of the cavity were festooned by the lacunæ of Howship, and in many places there were distinct calcification of the absorbent tissue. In that tooth, as in the other, Mr. Tomes thought it was obvious, from the resistance to absorption afforded by the walls of the pulp cavity which resulted in the leaving of a thin skin of dentine round it, that the pulp was alive while the absorption was going on. It presented resemblances to a specimen described before the Society by Mr. Colyer, but with the difference that in this case the bone was formed not inside the pulp cavity but in an excavation outside it. It was noteworthy that in neither case had the pulp, although very nearly approached, made much attempt to protect itself by the formation of secondary dentine.

Replying to questions raised in the course of a short discussion, Mr. Tomes admitted that small cavities were not very uncommon, and that they would pass, unless looked at with particular care, as incipient caries. He had found some shrunken red stuff in one or two places in the cavity which might have been the remains of soft tissue. In one case there was no redness about the tooth and it was not tender to pressure, its appearance being in fact absolutely normal. He thought it was probable that the pain was in the pulp. In the first case there was great tenderness in the socket, but it was difficult to say whether the pain was in the socket or in the pulp. In the case of the first tooth, absorption and deposition were going on simultaneously in different portions of the mass ; but in the other case he considered that the absorption must have gone on almost completely before any redeposition took place. The cases might throw some light on the subject of ankylosis, but there was the remarkable circumstance that in the first tooth there was no ankylosis, but the socket of the tooth served to mould the new growth into the shape of the old tooth.

The next meeting of the Society will be held on May 1.

Useful Hints.

Oxide of zinc for the final polishing of gold plates gives a beautiful polish, and does not soil the hands. The true working qualities of cohesive gold are best obtained by heating it on a sheet of mica. Direct heating in the flame of a spirit lamp injures its cohesiveness. When filling an incisor or cuspid that has a thin labial wall with cement or gutta percha, line the wall with four thicknesses of No. 4 gold-foil, it gives the tooth when finished a very nice appearance. In waxing up, oil the surface of wax before using blowpipe to give final finish to case.—*Pharmaceutical Journal.*

Annotations.

The Dental Hospital of London is to be congratulated on securing the services of Mr. Hopewell Smith as Demonstrator of Dental Histology. The appointment of demonstrators to assist the lecturers is a capital move, and with Mr. C. S. Tomes as lecturer, the anatomical department will certainly be very strong. Mr. Hopewell Smith's original work in dental histology is well known, and has already stamped him as one of the most promising investigators of the younger generation.

The return of Mr. Hern to the active staff of the hospital as Lecturer on Dental Surgery will be hailed with genuine satisfaction by everyone interested in the welfare of the institution. The post so ably filled by Mr. Storer Bennett will now be occupied by one whose teaching capacity in practical dental surgery has been well known ever since those early days when he succeeded Mr. Claude Rogers as demonstrator. The *Alma Mater* of so many readers of this journal is certainly about to enter its new home under the best of auspices.

On March 27, Mr. Bailey, who for so many years has been attached to the Dental Hospital of London as anæsthetist, was presented with an address and a service of old silver. A fund had been collected from contributions offered by Mr. Bailey's many friends, old colleagues and pupils, and its administration left in the hands of a committee, consisting of Mr. S. J. Hutchinson, Mr. Mummery, Mr. Smale, Dr. Dudley Buxton and Mr. Tomes, who devoted much care to selecting an extremely beautiful collection of Georgian silver, comprising a tea tray, tea pot, milk ewer, sugar basin and cream jug. A coffee pot and silver tea caddy of early Dutch work completed the collection. With this was given a most artistically illuminated scroll, containing, besides the names of those who had been contributors to the fund, a few hearty words wishing Mr. Bailey long life and prosperity in his retirement from active practice. Much interest attached to this illumination, as it was the work of Mrs. Arthur Underwood, and showed that she had mastered the minutiæ of the old mediæval illuminating. The occasion of the presentation was a singularly affecting one. The recipient and Mrs. Bailey were greeted by many old friends at 82, Mortimer Street, the residence of Dr. Dudley Buxton, and left the room bearing with them not only the weight of old silver but a wealth of kindly words and a sense of good will such as does not always fall to the share of every one who, after a long life of successful practice, meets those with whom he has been in almost daily contact for many years.

We learn that at the meeting of the Executive Committee of the General Medical Council, held on February 27, a supplementary notice was approved, to be issued to dental practitioners, as to the administration of anæsthetics, as referred to in the resolution passed by the General Medical Council on December 1, 1898. We believe that at present, owing to the opportunity afforded by the issue of the notice on "covering," this notice will be sent to dentists on the Register, but not to medical practioners until some such suitable opportunity arises.

The notice referred to is as follows:—"Any registered medical practitioner who knowingly and wilfully assists a person who is not registered as a dentist in performing any operation in dental surgery, either by administering anæsthetics or otherwise, will be liable, on proof of the facts, to be dealt with by the General Medical Council as having been guilty of infamous conduct in a professional respect."

A Bill has been drafted by the Lord Chancellor, and ordered by the House of Lords to be printed, to extend the same restrictions to companies with regard to medical practice as is at present extended to individuals. The text is as follows:—

Companies (Medical Profession).

[62 Vict.] [H. L.].

A Bill intituled an Act to Prohibit the Profession or Business of a Physician, Dentist, or Midwife being carried on by a Company.

A.D. 1899.

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal and Commons, in this present Parliament assembled, and by the authority of the same as follows:—

(1) *Companies not to act as Doctors, &c.*—It shall be unlawful for a company under the Companies Acts, 1862 to 1898, to carry on the profession or business of a physician, surgeon, dentist, or midwife, and if any company contravenes this enactment it shall be liable on summary conviction to a fine not exceeding five pounds for every day during which the contravention happens.

(2) *Short Title.*—This Act may be cited as the Companies (Medical Profession) Act, 1899.

Another Bill, as under, has also been drafted by the Lord Chancellor with relation to the carrying on by a company of the business of a pharmaceutical chemist, or chemist and druggist. Reference to this matter will be found in our editorial article on page 196.

The Pharmacy Act Amendment Bill.

Memorandum.

Under Sections I. and XV. of the Pharmacy Act, 1868 (31 and 32 Vict., c. 121), there are penalties on persons acting as chemists or druggists without being registered.

It has been decided that the word, "person" in Section XV. of the Act of 1868 does not include a corporation, and that, consequently, penalties for contravention of that section cannot be recovered from a company (Pharmaceutical Society *v.* London and Provincial Association [1880] 5 App. Cas. 857). It is obvious that a company cannot pass the examinations required to qualify for registration as a chemist or druggist.

The object of this Bill is to allow a company to carry on the business of a chemist or druggist on the condition that they employ a duly qualified manager or assistant, that is to say, to place a company in the same position as the executors or trustees of a deceased druggist, and to provide that, subject to this provision, anything which would be an offence under Section XV. of the Pharmacy Act, 1868, if committed by an individual, shall be an offence if committed by a company.

A Bill intituled an Act to Amend the Pharmacy Act, 1868.

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

(1) *Application of Pharmacy Act to Company.*—A company may carry on the business and use the description of a pharmaceutical chemist or chemist and druggist if and so long only as the business is *bona fide* conducted by a manager or assistant being a duly registered pharmaceutical chemist or chemist and druggist, as the case may require, but, subject to this provision, anything which would be an offence under Section XV. of the Pharmacy Act, 1868, if committed by an individual, shall be an offence if committed by a company.

Short Title.—This Act may be cited as the Pharmacy Act, 1899.

We regret that there has been unavoidable delay in issuing this number of the Journal owing to the fact that we have been obliged to await the arrival of important matter in connection with the Annual General Meeting.

Miscellanea.

Benevolent Fund.

The following *donations* have been received during the past month:—

Harrison, Walter, 6, Brunswick Place, Hove	£1	1	0
Midland Branch, B.D.A. (collection, per G. G. Campion)...	3	17	0
Allworth, Alfred, Parliament House, Peckham Road, S.E.	1	1	0

The Incorporated Edinburgh Dental Hospital and School.

The report of this Institution gives the following figures in connection with the work done in the past year:—

CONSERVATION.

	1896	1897	1898
Permanent Stoppings	3,943	5,308	5,786
Temporary Stoppings and Dressings ...	1,039	1,334	1,190
Dental Appliances	200	232	258
Total ...	5,182	6,874	7,234
Increase over 1897	360		
Increase over 1896	2,052		

EXTRACTIONS.

	1897		1898	
	Persons	Teeth	Persons	Teeth
Under Chloroform...	290	4,484	293	4,934
Under Nitrous Oxide Gas	516	1,474	620	1,838
Under Nitrous Oxide and Ether...	—	—	46	176
Total under Anæsthetics	806	5,958	959	6,948
Without Anæsthetics	3,930	5,117	3,796	4,652
Total extraction cases	4,736	11,075	4,755	11,600

Fifty-five students are numbered on the roll, and during the year three new apprentices have been indentured to the Incorporation—one of them a lady student. The report goes on to say that a debt of £2,000 is still standing against the Institution, and the Directors would appeal to the public and the profession for funds to enable them to clear it off. Several changes are announced in the staff, and "the Administrative Committee have under consideration certain proposed changes in the courses of lectures, rendered necessary by the new curriculum recommended by the General Medical Council."

Amalgam and Oxyphosphate.

Dr. C. W. Strang, in the *International Dental Journal*, in advocating the combined use of amalgam and oxyphosphate as a filling material, says:—" From the experience I have had with the use of this preparation, I find it makes no difference what amalgam you use. Some amalgams make a very dark, some a fairly light filling, others a more homogeneous colour. Some amalgams are preferable on account of the colour. It makes a great difference as to what oxyphosphate is used. All quick-setting oxyphosphates must be excluded. It also makes a difference as to the dexterity with which you use it. Do not mix it expecting to fill two cavities with the same kind. When the preparation has been properly combined, you must insert it in the cavity without an instant's delay. Every instrument needed for the operation must be at hand, so that no time be lost; unless this is done there will be danger of disintegration. My method has been, whatever amalgam I use, to put it into a mortar and add enough of mercury to make a mass so that it will not crumble if pressed between the fingers. When this is thoroughly mixed I use about one-third in bulk of the powder; mixing this all together will give you a black mass. I then place on the tablet sufficient liquid to properly mix up the oxyphosphate powder used. When you get this into a mass similar to putty, it is ready for use, and should be put into the cavity as expeditiously as possible and pressure be brought upon it. If an approximal cavity use a matrix in order that pressure be made upon the mass. In the course of two or three minutes you can remove the band and trim to required shape. If the mass is of the proper consistency, it adheres to the cavity just as enamel does to the teeth, providing the cavity be kept dry.

" I am not particular about getting in any undercuts. Generally the shape of the cavity is enough. The filling adheres so closely to the walls of the cavity that there is little danger of it being displaced. I do not recall a single instance in which the filling has been disturbed. The use of this material requires care. The cavity must be thoroughly prepared, just as thoroughly as for a gold filling. The instruments must be kept clean; your slab must be kept clean. Anything foreign brought into this mass will cause it to disintegrate, and it would be better to throw it away."

Gum Arabic in Soldering.

"To prevent the solder from moving or dislocating while using the blow-pipe, add an equal amount of powdered gum arabic to the borax powder. The gum will not interfere with the function of the borax, and it insures stability to the pieces of solder. When you desire to limit the solder to portions of the gold, paint the gold with a coat of rouge."—*Dental Digest.*

How Aluminium is Produced.

Aluminium is considered by many to have a great future before it, and, though it is not used to any large extent by dentists, it is nevertheless interesting to know what it is and whence it comes. The following account is from *Invention* :—

"Aluminium is now made at Niagara Falls about as cheap as brass, bulk for bulk, but not pound for pound, for aluminium is very light, its specific gravity being only about one-third that of iron. Native aluminium is found in clay and silicate, mixed with red oxide of iron. When separated from other substances it is a white powder. Electricity is the chief factor in the production of metallic aluminium. The powdered aluminium is placed in vats lined with carbon. Immediately over the vat is constructed a metal framework, through which are constructed a number of carbon rods 18 in. and 20 in. long and from 2 in. to 2⅛ in. in diameter. This framework is insulated electrically from the iron crucibles. The framework and the carbons are connected with the positive conductor of the electric current, and the vat or crucible with the negative.

"These conductors are 1 ft. wide and 1 in. thick, they carry a current equal to 3,050 horse-power, of great volume, but very low voltage, the electro-motive force at each vat or crucible being only about 7 volts. As the process is electrolytic and not simply a heating process, the direct current must be used, and therefore must be transformed twice, first to bring it to a proper voltage, and second, to change it from an alternating to a direct current. These iron vats or crucibles are connected in series, electrically, and then filled with the alumina and other materials, which act either as a flux or as a means of increasing the conductivity of the mixture. When all the crucibles are filled with the mixture the current is turned on and kept on continuously, day and night, seven days in the week. All the materials in the different crucibles are heated to redness when the process of separation takes place. The oxygen of the alumina is thrown off as gas, and other residuum floats to the top of the crucible and is skimmed off. Metallic aluminium in a melted state sinks to the bottom of the crucible, where it is dipped out from time to time with large iron ladles and poured into sand and moulded into blocks similar to that of pig iron."

Devon and Exeter Dental Hospital.

The annual meeting of Governors and friends of this Institution was held on March 30, at the Guildhall, Exeter, Mr. G. Franklin, J.P. (the President), in the chair. Messrs. J. M. Ackland, W. T. Bayne, J.P., J. T. Browne-Mason, G. Finch, T. G. Garland, T. A. Goard, W. H. Goodman, H. Hern, J. Passmore, J. F. Ralling, P. Varwell, and the Rev. Dr. Dangar were also present. The annual report, presented by the Committee of Management, stated that 2,902 cases had been treated during the year 1898. The accounts showed an increase in the expenditure over the three preceding years, but there was still a slight balance to the credit of the hospital. The Hon. Treasurer (Mr. J. M. Ackland) said that, owing partly to deaths and partly to a decrease in the contributions received from the Hospital Saturday Fund, the income had become less, the hospital only now receiving from the latter a subscription of six guineas, and no donation, whereas it used to receive a subscription of ten guineas and a like amount as a donation. A sum of £20, received from the N.N.D., had been placed to the credit of the reserve fund for the new building, and donations were announced amounting to £5 15s. 6d.; several names had also been added to the list of annual subscribers. The resignation of Mr. George Franklin from the office of president was announced by the Committee with deep regret, and they recommended that Mr. W. T. Bayne, LL.D., be elected as president for the coming year, and the Rev. Dr. Dangar as vice-president. They also recommended the re-election of the retiring members of the Committee of Management, the Rev. E. Chatterton Orpen and Mr. W. S. Mortimer, and of the Hon. Treasurer, Mr. J. M. Ackland.

Mr. J. T. Browne-Mason (Chairman of the Medical Sub-Committee and Senior Dental Surgeon), presented the Sub-Committee's report, giving details of the operations performed. He said that the work of the hospital was much appreciated by the poor of Devon and Exeter.

The President, in moving the adoption of the reports, remarked on the increased usefulness and established reputation of the hospital. He pointed out that the acquisition of new premises would enable the Committee to effect a saving in rent, which, with rates and taxes, now amounted to £50. He felt sure that Mr. Bayne would carry out the duties of president with satisfaction and success, and that Dr. Dangar would prove an able and valuable officer as vice-president. A vote of thanks was accorded to Mr. Franklin for presiding, and the meeting terminated.

NOTE.—ANONYMOUS Letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 26, Wimpole Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

Subscriptions to the Benevolent Fund to the Treasurer, A. J. Woodhouse, Esq., 1, Hanover Square, W.

All contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 26, Wimpole Street, W.

Journal of the British Dental Association

No. 5. MAY 15, 1899. VOL. XX.

Original Communications.

Valedictory Address.[1]

BY C. BROWNE-MASON, L.D.S.ENG.

GENTLEMEN,—On retiring from the post of President I must thank you for the honour so undeservedly conferred on me. Great positions demand corresponding greatness on the part of the holder of the office, and I am fully conscious that many others would have occupied the post of President with greater power and benefit to the Association.

In these days of keen research, of eager inquiry, those who fill public positions are expected to be men of many parts, and able to speak on most subjects—to be a kind of British Encyclopædia of knowledge. If this idea was generally accepted, I am afraid the post of President would often go begging.

I venture for a few minutes to call your attention to a point which large numbers of people do not take into account in dealing with the new varied problems of modern life. We must remember that there is no finality to any question. The last word, the last thought, never can be said or conceived. In all departments of science fresh discoveries are continually being made, new light is continually being brought to bear on all truths; the facts of yesterday are superseded by some fresh data of to-day. The advance of civilisation is a great but indeterminate factor in the solution of all theories. After many experiments, after many failures, it would sometimes seem as if a theory had been fully established, and put beyond the possibility of denial or change. Such a settlement can be but temporary and transitory. A new generation brings its own added light to the question, and the views and opinions of its predecessors have to be enlarged or modified, and so it will go on *ad infinitum.* It is as true in science as in theology, that "we are ever learning, yet never coming to a full knowledge of the truth."

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[1] Delivered at the Annual Meeting of the Midland Counties Branch.

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Our own century affords many illustrations. This law is at work in all phases of life—in medicine, in science, in history. The increased and accumulated knowledge of our own day has compelled us to alter the views handed down from our fathers, to adapt our conditions of life to the more accurate and newly discovered facts.

Take one or two instances: Darwin's great discoveries have completely revolutionised the world's ideas on the origin and species of man without contradicting or defying Divine revelation. Again, the treatment of disease has undergone many radical changes during this century. Remedies for certain specific diseases which at one period were accepted as the prescribed way, have given place to others more certain, more effectual in the alleviation and elimination of the disease. Our knowledge of history is continually being increased and in some cases corrected by the discovery of fresh facts, more reliable evidence, at the hands of those who have made history their special life-long work.

Our children will, no doubt, see this truth illustrated in their own generation. It will perhaps be a wonder to them how we were content to live under such conditions, just as we ourselves, when dashing through the country at sixty miles an hour, seated at lunch in a warmed and airy dining car, wonder how our forefathers endured a long journey outside a coach on a cold winter's night. "Ignorance is bliss!" The environment of life produces content.

The thought that the goal of knowledge is never reached in this life is a great stimulus to work. Not only is there the pleasure of adding fresh supplies to our own scanty stock, but we feel that we are contributing our mite to the common fund of knowledge, the source of a nation's greatness and independence. Wealth and physical strength are not the real foundations of national strength, though they are material aids, but the eager search for knowledge, and the love of all that is best and truest in human character. Every man must feel that by taking his part in this cause he is not only fulfilling the purpose of his own existence, not only conferring benefits on his fellow men, but that he is bequeathing to the rising generation the best of all legacies—a bright example of personal service in the sacred cause of duty. Every man, however limited his abilities and gifts, however circumscribed the narrow area in which he plies his allotted task, can make this his ideal. By this means we prove our right to the title of noble.

"What is noble—that which places
Truth in its enfranchised will,
Leaving steps like angel traces,
That mankind may follow still
E'en though scorn's malignant glances,
Prove him poorest of his clan.
He's the noble—who advances
Freedom, and the cause of man."

Inaugural Address.[1]

By G. G. CAMPION, L.D.S.Eng.

Gentlemen,—Allow me in the first place to tender you my heartiest thanks for the honour you have done me by placing me to-day in your presidential chair, an honour which I accepted with much difficulty and hesitation, though not I hope from want of appreciation of your kindness. For the second time in its history the Midland Branch meets in Manchester, and we hope that our welcome of you will be warmer, if possible, than it was on the first occasion, since our knowledge of you now is better. For that was the inaugural meeting of the Branch, its membership was small, and the members' knowledge of each other of the slightest; but now we meet after seventeen years with the confidence which attends greater numerical strength, and the feeling that mere professional acquaintance has ripened in many cases into fast personal friendship. We welcome you then right heartily, and hope that we shall not belie the character of our city, which claims to be hospitable if ugly.

In casting about for a subject on which to address you, it seemed to me that from the position which I have the honour to hold in this college, and the fact that the college itself is concerned directly in the education of dental students, it might not be out of place for me to bring before you some aspect of our educational problem, and that I might with advantage restate once more some of the arguments for a higher dental qualification or recognition of our profession in the universities, by the establishment of a university degree in dentistry.

To many medical men who regard the dental licence in much the same way as they do a licence in midwifery or medicine alone, our position seems naturally anomalous, and the scheme of our education narrow. Looking as such men do on a licence in any special subject as an addition to a general qualification in medicine and surgery, the dental licence as it is at present seems to be a standing denial of the well-recognised and accepted principle, that before devoting himself to one particular department of medicine or surgery, a man should in the first place qualify himself in the principle and practice of medicine and surgery as a whole; and so we are bidden to look forward to the time when the dental licence too will range itself with other special licences—when it too will become a mere addition to a general medical qualification, and when every dentist will be compelled to obtain a qualification in medicine as a preliminary step towards securing it. To me, however, such a view of our diploma and of the future that lies before it seems, if intelligible, to be a partial one, and to ignore certain facts which have had weight in determining the position it holds to-day. If we could fashion for ourselves a world in which dental disease was far less prevalent, or restricted mostly to the wealthy classes, or one in which a position of ease or affluence was common to all classes of the community, then we should have conditions which might justify the view expressed above. But in such a matter we cannot be ruled by conditions which are possible only in a world of fancy. We have instead to consider those which exist amongst us here and now; and in the widespread prevalence of dental disease, affecting the poorest as well as the richest, the utter inadequacy of a medical education to afford instruction in dentistry, and the long and exacting curriculum of eight years which would be necessary if medical qualification were compulsory, may be found the causes of the passing of the Dentists Act—an Act which settled the position which our diploma holds to-day, and which our Association was founded to maintain. And for us to come by any process of evolution to the view I have just expressed is as impossible as it would be for the generality of medical men to assent to the proposition that a university degree in arts should be a necessary preliminary towards obtaining a qualification in medicine or surgery. It may perhaps be said that I am here setting up a man of straw for the mere delight of knocking him down, and that the view I have combatted is one which has long died a natural death; but that this is not so is shown by the fact that only within the last six months I have heard this view stated by a leading medical practitioner in this city.

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[1] Delivered at the Annual Meeting of the Midland Counties Branch.

If, then, we are to regard dentistry as a specialism in medicine, it must be as one which the conditions of its existence make quite incomparable to such specialisms as those of ophthalmology and obstetrics. It is, although concerned with so small a portion of the human frame, a specialism more or less *sui generis*, just as medicine and surgery themselves are, and this from the conditions attaching to the practice of it, which necessitate a separate curriculum, a separate diploma, and an entirely separate register of its practitioners.

Now a general survey of the changes which have taken place in medical and dental education during the last fifteen years shows that this differentiation has become emphasised as each has become more perfect in its own sphere. On our side, while we may note an approximation to the medical curriculum in the enforcement by examination of the serious study of chemistry and physics, yet the main tendency has been to enhance the thoroughness and value of the training in purely dental subjects, to strengthen them where they are weak, to add where necessary to their number, and to ensure, so far as it is possible to do so, that the study of them shall be practical. In a word, the tendency is towards still further differentiation, still further specialism; but specialism, we believe, of a right kind, a specialism based on as wide and thorough a knowledge of the fundamental general and medical sciences as is possible in the time which considerations of public policy and the exigencies of the public weal permit to be demanded of all who wish to practise it.

But there is no finality in a matter of this kind. Progress in science is perpetual, and goes on with increasing velocity, and as this takes place in subjects of professional import, professional education must expand too until the minimum time demanded of all for the study of a profession is inadequate for the comprehensive and detailed acquirement of the different subject-matters with their collateral branches of knowledge. This is now the case in our profession, and the question comes: how is the additional time to be spent by those who wish to devote more than the minimum amount of four years to their professional education? Till now such men have been for the most part in the habit of acquiring also a medical and surgical qualification. But it has been getting more clear that for those dental students who wish to extend and deepen their course of study, a medical qualification affords no adequate solution. As the requirements in curriculum and examinations of both medical and dental diplomas get respectively more stringent in their own sphere, so must the difficulty increase of acquiring both qualifications. The number of those who do so is not increasing in proportion to the increase of dental students, nor to the increase of ability in those students. But the number is increasing of those who start enthusiastically for both diplomas, struggle for a while with the difficulties, but find the burden too heavy for them and lay it wearily down. And this too for another reason than the more or less mechanical one of insufficiency of time and money. The medical man who wishes for a further qualification, such as Membership or Fellowship of the College of Physicians, or the Fellowship of the College of Surgeons, or a degree in medicine or surgery at one of the universities, is required to show a wider and deeper knowledge of the subjects which he is to practise; while the dental student, who aims at taking a medical in addition to dental qualification, finds on the other hand that his attention and mind are drawn more or less away from the special subjects of his life work, as the difficulties of his medical examinations come to occupy so large a place in his imagination. Here lies the difficulty in the higher training of dental practitioners, and hence the view of many of us that a principle which obtains in other branches of education should be extended also to ours. In arts, in science, in law, in literature, in divinity, in medicine, and in surgery, we find lower qualifications and higher qualifications, all in principle testifying, though in quite different degrees, to the various abilities of different men, to their different capacities for work and for acquirement. To take the subjects of medicine and surgery, which are those most nearly related to our own, a man who means to practise solely as a physician takes or may take a higher qualification in medicine—it may be the Membership or Fellowship of the College of Physicians, or a degree in medicine of one of the universities; a man who means to practise solely as a surgeon takes or may take a higher qualification in surgery—it may be the Fellowship of the College of Surgeons, or a degree in surgery at one of the universities. And so too it seems not unreasonable to suggest that a dentist who wishes to widen and deepen his course of study, should find the means of doing so by following the curriculum of a higher qualification in dentistry, and not be obliged to look either to a medical or a surgical qualification, or a medical and a surgical qualification taken conjointly, for these require of him no additional attainments in the work which must so largely occupy his mind and time in after life, and they may admittedly, if attempted in too short a time, tempt men to neglect their practical dental work.

In what way, then, is this need to be supplied? Time was when royal colleges and incorporated societies were the chief means of providing qualifications in the professions most nearly related to our own, but latterly the universities have taken up more thoroughly the question of professional education, and now one turns naturally to the universities in a question of this kind; and to me at least it seems that our want can best be supplied by some form of university degree. But let no one suppose that a university degree in dentistry would mean simply an increase of special knowledge. I imagine that underlying the idea of a university degree in the subject matter of any professional calling there is implied a wider and deeper knowledge of all the educational subjects which it touches than is to be found in a pass diploma or licence to practice; that it goes further in arts, in general science and professional knowledge; that it demands a firmer and wider grasp of those branches of science or knowledge which stand in close relation to the special professional subjects. It implies, or should imply, a clearer insight into their mutual relations, a quicker appreciation of their influence on, and importance to, one another, and it leads, or should lead, to a juster estimate of the true position of that particular calling in the sum of human energy and human knowledge. I would emphasise this point because there may be some who have been captivated by the idea of some higher qualification in dentistry mainly as a means to a more thorough requirement in practical dental work, but if such a qualification is to be instituted, and particularly if it is to take the form of a university degree, then our conception of it must be decidedly more comprehensive than this. And when the time comes, we in Manchester shall know where to look for the realisation of our aspirations. Here is the seat of the university which is playing so large a part in the higher education of Lancashire and Yorkshire; a university with three incorporated colleges at Manchester, Liverpool and Leeds. At Manchester and Liverpool there are now dental schools in connection with the University College, and when they are able to train enough dental students with a university standard of ability and acquirement, then a request for university recognition will not be likely to be made in vain.

Dodges.[1]

By FREDERICK ROSE, L.D.S.Eng.

Mr. President and Gentlemen,—When first we start on our voyage down life's stream we are contented to cull the blossoms from its banks just as they present themselves, for the world is a paradise and all the blossoms we see are beautiful to our eyes. As time advances we find the most beautiful blossoms are those grown on the trees of our own culture. They may not be more beautiful or more useful specimens of the horticultural art than those of our neighbours, but the toil and thought we lavish on our own trees endears to us what might otherwise seem ugly and disagreeable plants. All must choose a species of plant to cultivate, and each has to endeavour to cull as many blossoms as he can from his own plantation in order to live; but that does not debar many of us from occasionally wandering off our own beaten track to examine the plantations of other people, whose business it is to cultivate different species. On these occasions we often glean valuable knowledge, which helps us materially in the cultivation of our own speciality.

Our species for study and culture is the tree called "Dentistry," with which I assume we all have a thorough acquaintance. All I propose to do to-day is to show a few unusual blossoms that have come in my path in my journey, either as a result of my own investigation or presented to me by a *confrère;* and in return I hope my hearers will all find some rare blossoms to bring before this meeting.

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[1] Read at the Annual Meeting of the Midland Counties Branch

Well, gentlemen, to descend from allegory to prose; at the outset of my remarks I desire you to understand that if I tell you a "dodge" that seems like teaching my granny how to perform the proverbial operation on the embryonic production of the hen, I am addressing the man at the other end of the room, and you can accordingly go to sleep.

It is not an easy thing to bring the information in such a paper as this into a really orderly form; but what naturally suggests itself to one is to take the subject somewhat as we take our curriculum, *i.e.*, commence in the laboratory and finish in the surgery. Before doing this, however, we must have models, so I will open my remarks by touching on dodges in getting an impression, whether in plaster or composition.

To *obviate suction;* with composition: pass a thread of rubber dam silk across centre of composition in tray before inserting in mouth. When composition is hard draw out silk and the impression drops, owing to the inlet of air.

With plaster: it is better to have a plug through centre of tray and plaster, which is withdrawn when plaster is set. Carmine mixed with plaster for an impression is useful in defining the impression, and the plaster model cast into it.

Before taking an impression in composition, first run cold tap on tray, and then warm surface of composition over spirit-lamp. This gives a better definition than if the composition were of the same consistency throughout.

Sometimes we have to take an impression of a mouth whose internal capacity is out of proportion to the orifice between the cheeks and lips. In these cases insert tray on right side first and drag cheek back, and with the left hand over the head hold a visiting card in the angle of the mouth, so that the left side of tray will press against this instead of the cheek. It acts as a shield for the cheek, and greatly facilitates the ingress of the tray.

Sometimes we require thin blade clasps on a plate in a case where there is so little interspace between the teeth that it is difficult to cut the model with the saw exactly in the right place. In such a case use blades of silver, like specimens I send round, pushed between the teeth in the mouth. These come out in the composition or plaster, and when the model is cast into the impression the lines for the blades are exactly indicated.

When one or more long fangs, which our patient clings to like old friends, remain in the gums, it is a good plan to cut holes in our impression tray to let these teeth through, and then mould a bit of soft composition over each when it emerges through the tray.

When we have a very dove-tailed model to take, it is as well to make small composition blocks for the dove-tails, the same as in false core-casting in metals, and then take the impression with these *in situ*. They are left behind in the mouth, but are then taken from the mouth and placed in position in the impression and the plaster cast into it. The fine lines of union can be scraped off the model with a pen-knife. In cases with loose teeth this is a most useful dodge, as the blocks help to steady the loose teeth.

We sometimes are confronted by cases where, from one cause or another, the patient, wanting a denture, cannot be seen without teeth, and cannot spare the time to stay at home during the making of a temporary set. In such cases I have very frequently adopted the following plan with very great satisfaction to my patient. Take a specimen model of the natural teeth as they stand, and match the colour. Procure a set of "minerals" of exactly the size, shade and character. Then preferably extract the back teeth and stumps that have been condemned, and leave the gums to settle for a few weeks; but this is not essential, it is only advisable. Next take an impression of the mouth with the teeth in, and make trial plates for getting the bite to these models. When this is done with a fret saw cut off the teeth of the model close to the gum, having previously carefully trimmed away any drags in front so as to get the exact position of the labial surface of the natural teeth. Then with a sculpor cut out the plaster from the sockets of the teeth on the model, so making your plaster model like it would have been if you had taken the impression *after* extracting the teeth. Cut it freely away from the labial wall of the sockets. This insures a good fit of the artificial teeth to the gum. The front teeth are then extracted, preferably under an anæsthetic, and the plate inserted at once, using force to push it into place and mould the alveolus to the necks of the artificials. With a little practice you can get most accurate fits.

Some patients are very helpless at first with suction uppers. In such cases it is an aid to them, till custom makes the suction come naturally, to dry the palate with a fine cloth or bibulous paper, freely cover the palate of the denture with glycerine, and put in place, using some pressure.

It is a good dodge where a young patient has one or two natural teeth much elongated from Rigg's disease, to extract them and use them to fix on to a plate—metal of course—instead of mineral teeth. Of course the teeth must be sound. It always pleases the patient. The way it is done is with a pin for a tube tooth cemented into a hole drilled through the base, but not to penetrate the enamel, and osteo is used for cementing.

We now have our impressions. They have to be cast in plaster; but I expect I have nothing novel to suggest on this head. We all know that a pinch of salt hastens the setting of plaster, as also does the use of hot water, and that alum causes an increase in the hardness when dry.

Just one hint for those who use slab bites. Get an old slab, cut off the portions that have retained the models in place, and rough the surface with knife cuts. Put it in water for a minute or two, and wipe dry. Then put a dab of plaster on each side, not to run into one another however, and lay the models already greased into them, moulding the plaster up in your usual way. You will find this completely prevents the opening that always takes place with the old slab bite. We used at one time to bake fireclay slabs for this purpose.

When we have to cast a model in sand that has small interspaces where one or two teeth have come out, and the standing teeth are long, it is a good dodge to bend a bit of thin iron wire, like a hairpin, only shorter, and place it across the interspace sufficiently loosely to draw out in the sand when removing the plaster cast. It prevents the blocks of sand between the teeth from breaking out.

Core casting is a subject in itself, therefore I will refrain from any mention of it.

Let us now go into the surgery and see what dodges we can find to help us there. The word "surgery" quite naturally suggests extractions, so let us commence our investigations with them. A warm pair of forceps is a real luxury to a patient. I have several times succeeded in extracting small ends of stumps too deeply implanted for the forceps or elevator, by the use of a fine excavator bent at right angles, pushed down the side of the socket as far as it will go, and then gently rotated with the thumb and finger with a slight pulling movement.

I here have an imitation of a weapon with which I extracted two lower molar stumps for a friend at whose country house I was staying. It is a two-pronged fork with the prongs broken off—I broke them off with my foot on the occasion I speak of—and filed to something of the shape of an elevator. I rubbed it down on the back kitchen sink. It was a smaller fork than this. My friend thanked me. I replied, "Don't mention it, old man; it was as much pleasure to me as to you." He believed me.

When an upper wisdom which is fully erupted is biting on to the gum over an uprising lower (or *vice versâ*) and extraction is required, extract the fully erupted tooth, *not* the one which is causing the pain. It is simpler, and effects the same end.

I suppose most of us know the dodge of freely soaping the beard and whiskers of men before giving gas?

In connection with stoppings there are a few simple dodges worthy of a passing reference; as for instance the use of a pad of rubber to pick up non-cohesive gold from; the lining of cavities with thin osteo, and while the osteo is quite soft, filling in with amalgam in large cavities that have a backward aspect, *i.e.*, an aspect where amalgam does not show. One gets the sticking property of the osteo, as well as its freedom from staining or transmitting thermal changes, and increased strength to the enamel with the endurance of amalgam.

Strong carbolic acid dried into sensitive dentine with a warm air blast makes a splendid non-conductive medium for receiving a gold plug.

I will now pass round a model to illustrate a device I resorted to once for a boy who had a central incisor fractured with a stone, exposing the pulp; and whose medical man forbade the use of gas for the killing of the pulp, and at the same time intimated that the shock of either extraction or pulp extermination without gas was also dangerous to his heart. I passed a small piece of rubber-dam over the stump, and tied with cord in the usual way. I then applied arsenical paste to pulp, and over it laid a small pledget of wool steeped in mastic varnish. Then gently drawing the free portion of rubber down over the stump, I tied it in a bunch and made a bag of it, cutting off the surplus close to the thread. The next day the pulp was devitalised.

The next model I pass round I have used to demonstrate two different devices. The porcelain tip on the molar is a large flat central with the pins turned into the cavity and bent, and is secured in place with osteo. To do it, grind the molar down with a flat top. Take an impression, and cast also a bite. Shape to parallelism with the external walls of the molar, and grind to the bite, also roughing its surface for masticating purposes. For frail molars it makes a most durable masticating surface. I have done many such.

The other device shows how I once rapidly made a lady presentable for a Governor's reception when I was in practice in Guernsey. She had lost her little denture when crossing the Channel. I bent the wire as you see, so as to make it act as a base and as clasps, fitted a flat tooth to the mouth, backed it, and tacked it with solder. I then roughed the wire with a sculpor, and heated it, and around it moulded a small flat piece of modelling gutta-percha. Then warming it again, I placed the apparatus in the mouth, and moulded it with my thumb and finger and warm spatula to the teeth and gums, and trimmed off the surplus. That plate lasted for weeks. I used spring gold wire drawn very thin, so as to cling to the necks of the teeth, and be invisible under the free margins of the gums. The model I pass round is an imitation I have had made just as an illustration for this meeting.

This brings me naturally to another emergency dodge which I once adopted to allow a lady to go to a ball. She came about 5 p.m. and left long before 6 o'clock. She had suddenly broken off a neglected central, and turned up for repairs just as I was leaving. I did not feel disposed to set to work and do a proper crown at that time in the day, so I just stoned down the root, and opened the pulp canal for a pin, fitted a flat tooth to the mouth, bent out the pins, and around them I passed two or three turns of thin binding wire. Then I pushed my pivot pin between the wire and the porcelain, and tightened the wire up. I had, however, previously flattened and split the top of the pivot pin, and bent the two split ends outwards as the specimen shows. To fasten it in the root, I dried and used a large surplus of osteo for cementing, and utilised this surplus to mould round the binding wire and back of the pivot, so as to make it smooth for the tongue. It was a pity I was married at the time, for I quite won that lady's heart, and she was rich.

I have used much the same expedient for facing upper bicuspids when the palatine cusp has been standing. In these cases I have used a matrix, and filled in the interspace between the cusps with amalgam. Gold foil folded and then warmed over the spirit lamp to make it cohesive, and flattened together, then trimmed to interspace and pressed over a root, ready shaped, with a pledget of cotton wool, makes an excellent base for a pivot, and is a very quick method. Just pierce the gold over the hole in the pulp canal and force the pivot pin through. Remove and back with solder. Back and fit a tooth, and wax up and solder in the usual way.

I now pass round a little instrument I made once in an emergency to test the parallelism of roots for a bridge.

Next I show you a method I adopt for fixing the soft velum to a gold plate in cleft palate cases. I strike two bands of thin gold along the posterior margin of the plate, leaving the band farthest from the plate a little broader than the intermediate one. This leaves a margin by which to solder it to the palate. To the intermediate piece of gold flanges are soldered to retain the velum rubber.

An expedient I adopted in connection with replantation is worthy of mention. Patient, a girl aged about 18, had a very bad right upper lateral much decayed and inflamed; but on the left side, by good luck, had a well-shaped supplemental lateral behind the normal one. I removed the bad lateral, and washed the socket out with antiseptic; then extracting the supplemental I pushed it into the socket of the bad lateral and ligatured. It fixed beautifully, and I saw the patient quite a year after and it had kept its colour well. I then lost all trace of her.

I did think of showing the next of my dodges as a casual communication, but I think it comes better into place in this record. The apparatus I hand round is the facsimile of one I had made in my laboratory to conceal a deformity in the mouth of a gentleman, an actor by profession, aged 23. In childhood the case might have been treated by extracting the laterals and drawing the central in. Now it might have been done by extracting all and putting two large centrals on a plate—but the patient has a strong prejudice against a plate—or a bridge might be constructed, but then extractions would have to be performed, and he, strange to say, does not enjoy tooth extraction. Whatever might have been done, this is what I did, and delighted the patient immensely.

A plate was struck on a model with the laterals removed, and another plate struck over a cast taken from a model built up with wax to a bump behind the centrals to make a hollow box for lightness' sake and soldered. Neat clasps were put clipping the mesial sides of laterals, and flat laterals fastened in front of the natural laterals. The deformity is now hardly noticeable, and the bump of gold, giving occlusion to the tongue, restores the power to articulate his linguals and does away with spluttering of saliva when talking. To him, in his profession, it has proved very valuable.

I now show you a gold denture composed of two thin plates, containing between them an interspace, instead of having a very thick single plate. It gives great strength, and much greater lightness. It is on the principle of the tubular bridge.

Before taking my seat, Mr. President and gentlemen, I only wish to add that I have mentioned nothing but what I have actually done, and I hope the after discussion will send me away richer in my stock of dodges. Gentlemen, I thank you for your patient hearing.

Further Experiences with Ball-ended Pluggers.[1]

BY W. CASS GRAYSTON, L.D.S.I.

AT the Annual Meeting of the Midland Branch, held last July, I read a paper on "Instruments for Filling Teeth with Cohesive Gold," and advocated the use of ball-ended pluggers. It is unnecessary to quote from this paper, it is published in the January issue of the Journal of the Association. During the nine months that have elapsed since that meeting I have made a few more experiments, and slightly modified the forms of the pluggers then shown. Some account of this and of conclusions arrived at as the result of extended experience may be useful to any who are interested in this subject. The forms of several of these pluggers have been changed, not because the original set did not prove satisfactory, but from a desire to combine the greatest efficiency or applicability with the fewest instruments. Serrations have also been entirely done away with, and a roughening of the ball-ends all over has been substituted. The object of this roughening (which first of all I did myself) is to secure a little greater ease of manipulation. There was no difficulty in using the original set, but I thought they might be improved if a slightly better grip could be obtained by the sides without in any way dragging the gold. Then, again, in theory at any rate, the smoother the instrument the better the adaptation, particularly if a fast-striking mallet is used that admits of wiping the gold to place with a forward, a backward, a sideways, or even a circular or rotary movement. Perfect smoothness in a ball-ended plugger renders manipulation very difficult. The nearest approach to it is a slight roughness, just sufficient to prevent slipping, and enable the gold to be easily directed to place in the cavity. The same effect would doubtless be produced with very fine and extremely accurate cross serrations, particularly if all sharpness was carefully removed with arkansas stones or fine emery paper.

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[1] Read at the Annual Meeting of the Midland Counties Branch.

The cutting of these serrations over the entire surface of ball ends would, I presume, be difficult, it would probably add to the cost of the instruments, and the simplest means of attaining an end is always desirable. It may be that in using hand pressure, or the hand mallet, or the automatic, some operators will desire an increased grip on the gold, and in this case I think there would be no objection to having ordinary fine cross serrations cut on the top or principal packing faces of these pluggers, the rest of the ball-ends being roughened as at present. So far I have not found this necessary myself.

When I began to use ball-ended pluggers I feared the building out of contour so necessary on the mesial and distal sides of bicuspids and molars would be difficult, and I was prepared to use other instruments when the gold was to be extended beyond the walls. I find, however, there is no need to use other pluggers, and no more than the usual difficulties present themselves. Before I used ball-ended pluggers it was my habit to wrap the gold over edges and smooth down the overlap and external surface of the filling as the work proceeded with thin flattened burnishers. I still continue to use them, but they are not necessitated *because* the filling is made with ball ends. A little difficulty may at first arise in working the gold on and over edges, particularly cervical edges, especially if the automatic mallet is used. With a little experience this disappears almost without conscious effort. There is no objection, however, to using small foot or other suitable pluggers as a help in building contour; it is merely a question of what can be employed with the most convenience and accuracy in any given case. When sharp angles are made with inverted cone burrs these angles must be filled with the sharp edges of suitable pluggers; in other respects ball-ends are of almost universal application. I have made a few fillings in glass and submitted them to the ink test. I regret that the number is small; I trust, however, others may be induced to supplement them and publish the results.

No. 1 was made with No. 4 foil folded up to No. 16. Hand mallet, careful manipulation. Result: no leakage.

No. 2.—Hand pressure with gold and care in manipulation same as No. 1. Result: leakage. Nos. 1 and 2 were shown at the last Annual Branch Meeting.

No. 3.—Pellets cut from a loosely rolled rope of one third of a sheet of No. 4 foil. Hand pressure; very careful manipulation, especially in using as much lateral force as possible. Result: slight leakage.

No. 4.—Large pellets cut from a loosely rolled rope of a whole sheet of No. 4 foil. These pellets were considerably larger than the orifice of the cavity; automatic mallet used; manipulation rapid; consolidation imperfect. No leakage.

No. 5.—Large cavity. Pieces of Watts' crystal gold No. 1 as large as orifice of cavity. Automatic mallet; rapid manipulation; condensation imperfect. No leakage.

No. 6.—Pellets of No. 4 foil from one third sheet loosely rolled. Libby wooden handle used; ball end hand made and not quite round; fair manipulation. Slight leakage.

No. 7.—No. 4 foil folded to No. 32. Careful manipulation; automatic mallet. Leaked badly.

No. 8.—Nedden's crystal gold, using pieces nearly as large as orifice of cavity. Careful manipulation; consolidation extremely imperfect; automatic mallet. No leakage.

No. 9.—Watts' crystal gold. Hand pressure; manipulation careful; adaptation almost perfect.

No. 10.—Pellets from loose roll of one-third sheet, No. 4 foil rapidly wiped in with Russell electric mallet; adaptation almost perfect.

No. 11.—Large pieces of Watts' crystal gold, much larger than orifice of cavity. These pieces had to be turned and folded in order to tuck them in; automatic mallet used with fairly strong blow; condensation imperfect. No leakage.

In all of the above experiments the largest sized ball end was used, and with the exception of No. 11, the mallet fillings were made with a light medium blow. In No. 11 the blow was not unreasonably strong, although heavier than many patients would like. In the cases where the condensation was imperfect, this was due to the use of large pieces, and insufficiently long-continued manipulation to condense these pieces thoroughly. The experiments were made for adaptation solely, the manipulation was frequently arranged to severely test the pluggers, and I must say I was intensely surprised at producing perfect adaptation in Nos. 4, 5, 8, and especially 11.

From the above I draw the conclusions: That as far as adaptation is concerned, foil should be prepared in the form of loosely rolled pellets, or light strips such as No. 16; or a good crystal gold may be used; that mallet force is decidedly better than hand pressure whenever it can be applied with precision; and that crystal gold is perhaps better than foil when hand pressure is used. Accurate adaptation does not necessarily mean thorough condensation, any more than condensation necessarily produces adaptation. In testing for condensation when other work was done with this object I found the result obtained with ball ends equals if it does not surpass, that produced with ordinary pluggers of equal size used with the same force; and although I do not claim increased rapidity of work, I think it will be found—in certain cases at any rate—that time will be saved. The condensation of gold always, however, demands careful and long-continued manipulation, and it is so easy to obtain speed at the expense of consolidation, especially with instruments of this kind, that I am suspicious of all rapid methods that do not principally depend on the possession of some peculiar or exceptional skill. I have made too many poorly condensed fillings not to have an opinion on this point, and without in any way desiring at the present time to enter into the subject of just how much condensation is desirable or necessary in any particular case, or in the majority of cases, or to discuss the time question, I think it unwise to lead anyone to expect more rapid work than is usual with them merely because these pluggers are used. Then, again, I do not wish it to be thought that perfect adaptation will necessarily be obtained in all cases in the mouth. I do not suppose for a moment I accomplish this myself. In this, as in other work, the greater the skill of the operator and the more pains he takes, the more frequently will he succeed.

What I do claim is that, taking one case with another, the readiness and accuracy with which ball-ends can be applied to all parts of cavity walls, and the fact that the area or point of contact is the same no matter at what angle the plugger has to be held, gives an assurance of producing the desired result with the greatest ease and certainty. The flat-faced plugger is all right whenever it can be accurately applied. I venture to think, however, that unless an operator is prepared to use a great many instruments in nearly every case, the different angles at which the face is presented to the walls, causing an ever-varying point or area of contact, will every now and then bring about a little bridging or imperfect adaptation against the walls. Such has been my experience. I have in the course of several years made a great number of fillings in the handles of old tooth-brushes. I used to remove the fillings intact and examine them with a strong magnifying glass. The gold almost always appeared to be perfectly adapted to the bottom or floor of the cavity, but until I used ball-ends I was never satisfied that it was equally well adapted to the side walls at every part. I am sorry I have not made a series of fillings in glass with different kinds of pluggers and brought them here for comparison. I have, however, a few of the old toothbrush fillings with me and they are at the disposal of anyone who may like to examine them.

The glass slab in which the experiments were made now contains six fillings. It is here for your inspection. Owing to the trouble and tediousness of making the cavities I cut out several of the fillings after noting the results and inserted others in the same holes. These that remain are Nos. 1, 2, 5, 7, 9 and 11 of the above-mentioned list. I may say that in filling starting pits or in wedging in a base of soft or unannealed gold, it is better to use ordinary instruments, for the gold has here a tendency to curl round the ball-end and be pulled out of place.

In Dr. Leon Williams' paper published in last month's *Dental Cosmos* is a quotation from "Marcus Aurelius," and I cannot do better than conclude with it: "If anyone can convince me of an error I shall be glad to change my opinion; for truth is my business and nobody was yet hurt by it. But he that continues in ignorance and mistake, it is he that receives the mischief."

I trust therefore, gentlemen, you will correct me if I have fallen into error, and that you will excuse the small number and consequent incompleteness of the experiments. This is but a small contribution to an important subject, one that demands a great deal more investigation than has already been given to it, and if anything I have said induces others to look into it and give the experimental side a little more attention I am sure it will be of great benefit to us all.

The Need of a Board of Dental Education.[1]

BY DAVID HEADRIDGE, L.D.S.ENG.

"THE air is full of wars and rumours of wars." To nothing is this saying more applicable for us than what is now ranging over Dental Education. You can scarce open a dental journal, especially an American one, without seeing an able and eloquent editorial or other article upon this question. Thrust and parry are the order of the day. We should not be diffident to enter this *mêlée* if we have any convictions aiding its solution, as combat may reveal our own weakness or that of the opposing force; but, anyway, it will advance the cause we all have at heart—the perfection of our professional education.

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[1] Read at the Annual Meeting of the Midland Counties Branch.

In our own country this question is attracting increasing attention. In the Medical Council, in educational centres, in presidential addresses, in contributions to the dental press—on all hands we have evidence of its exercise over the minds of many. At our last students' dinner here in this city, it formed the topic for both medical and dental representatives to speak on. Yea, further, it is suggested as the great controversial question for the International Congress in 1900 at Paris.

All this is well; it shows an alertness which speaks volumes for our young profession; it wants but the tempering of wise counsel for much good to follow.

Our education is one, or should be one, so varied and cosmopolitan in character, both theoretical and practical, comprising a garnering of many facts—medical, surgical, and scientific, with their application—the practical knowledge of many arts and crafts, with a highly-developed manipulative dexterity that, it can truly be granted, it requires a mind peculiarly fitted to grasp the importance of the various schemes suggested, and to give to each its due consideration as a means of advancing our education.

First, you have your "extremists"—some believing in the value of advancing the more theoretical subjects of education, as medical studies; others who strenuously advocate that more practical, technological training; both equally convinced of the wisdom of their suggestions.

Then you have some who rather favour a middle course, and whilst believing there may be good in both propositions, feel more the necessity of so reforming the present code of education as that it may reap their advantages without the attendant disadvantages, and at the same time render more efficacious to the purpose in view the existing code.

The last group, not without reason, point out various defects in our present system and offer suggestions for its improvement; none can be adverse to such a constructive criticism. We are well aware that Rome was not built in a day, neither is the problem of an ideal education speedily solved; but it is only by those interested expressing their views that we are ever likely to arrive nearer to perfection. Such opportunities exist at the committees associated with our educational institutions, and at our Association and other Society meetings.

That defects do exist all interested in our education know only too well—its lack of appreciation of subjects relevant and subjects irrelevant to our practice, its wasted opportunities, its permission of evasion, its failure as an ideal. I need but allude to the farce of much of the general hospital training; the too great brevity of that at the Dental; the waste of time in much irrelevant study in general therapeutics; the shirking or overlapping of mechanical pupilage; to substantiate such statements, when before us appear numerous subjects more deserving of our attention—pathology and bacteriology, orthodontia, dental materia medica, greater technical skill and knowledge, in its numerous applications to our science. For there is a vast potentiality in that phrase, "the science and art of dentistry." Knowledge is power, but applied knowledge, or that capable of application, is a greater power.

The views as expressed above can be easily culled from the pages of our journals; yea, further, they are evident in those of our school calendars. For in them not only do we find strenuous advocacy of the value of certain sections of our education, but we find many courses included which are not in the official list of the Medical Council, nor yet in the regulations of the various examining bodies. True, they evince a wisdom beyond their senators, but how much better if such met with a necessary and more universal adoption, when not merely the minimum but the maximum was provided for in dental education, to the mutual advantage of all entering the profession, and to the good of the profession itself. Surely if there are some subjects which schools consider essential for incorporation in dental education, how much better would it be if we had a representative committee keenly interested in the welfare of the profession who could the better formulate the course.

What means have we at present for focussing these opinions upon educational questions? We have, as I hope we shall long continue to have, the General Medical Council as the final tribunal before which our case can be laid. But, however distinguished the members of that Council may be, they naturally have so many and so varied matters for their consideration affecting both the medical and the dental world, that it naturally follows they can but inadequately comprehend the views of dental educationalists, for with one exception they are all representatives of the medical profession, and it follows that our ideas, however impartially they may be considered, must to a degree be refracted. Now would it not be an immense advantage if we had some corporate body to act as a diaphragm—to use a microscopist's metaphor—to lessen this tendency to aberration, and so the more rapidly produce a clear vision of the purpose in hand? I feel that before such a high-minded body as that of the Medical Council, it wants but an adequate representation for our educationalist's views to be met and in our representative we are thrice fortunate in one who, whatever his individual leanings may be, would impartially present the case on behalf of such a corporate body as I have suggested.

At present it depends on one school or another taking an initiative, receiving more or less support from others, sometimes direct antagonism. Such a course was pursued about January of 1898, when some of us held aloof from supporting what in the abstract we agreed with; yet in the concrete, its details and tendency, could not and will not receive our support.

Here would have been a splendid opportunity for such a body as I suggest, to introduce, discuss, and act for the benefit of our dental education; what a representative opinion would have been there for assistance to the members of the Council.

It has been suggested in discussion of my previous paper that such a committee should be part of our Association. Enthusiastic member as I am, admirer of its aims and its power for good, I feel sure, however advantageous it might be, and I think should be, a section devoted to educational questions—a Board of Dental Education—should be, like Cæsar's wife, above suspicion, above bias; this can never be in an organisation which is partly political. A wave of such opinion may thwart the aspirations of the strongest educationalist, and such a committee to my mind could only be adequately formed by direct annual nomination from the various schools throughout the kingdom. You would in that have as near an impartial Board or Conference of Educationalists as it is possible to compose who would be keenly alive to the trend of educational opinion and ever ready to give it guidance, leaving to individual schools still the power of initiation.

Surely the time is *now* opportune for the establishment of such a Board; it remains for you to endorse or otherwise this assertion. Great as has been the progress in dentistry in the past, one can but appreciate the possibility of greater progress in the future. It is for us to render easier its accomplishment.

It is a wise canon for educational as well as political motives—"the greatest good for the greatest number."

AMONG the papers announced as offered for the forthcoming Annual Meeting of the British Medical Association, we notice one on "The Early Decay of Teeth in Great Britain," by James Cantlie, F.R.C.S. This will be interesting to those members of the British Dental Association who are also members of the British Medical Association. Mr. Cantlie's connection with Charing Cross Hospital—the nursery of a great number of well-known members of the dental profession—should ensure a careful and an attractive paper. It is good to see medical practitioners taking an active interest in dental subjects.

Abstracts and Translations.

A Substitute for Rubber.

Invention of March 11, gives us the following:—A new industry which has just been established upon an apparently firm basis in England uses for its raw material linseed oil or any of the other vegetable oils of similar properties. It promises to become of wide importance, because its products partake of many of the qualities of india-rubber and gutta-percha, the supplies of which show a constant tendency to fall below the growing demands. That oils of this sort have in them qualities of high usefulness was discovered ages ago, when they were first used for paints, and the new industry takes advantage of the same quality of hardening by oxidation.

Linseed oil has been used for paints and varnishes for generations. It is well known that when the oil is spread out in a thin layer exposed to the air it absorbs oxygen and becomes very hard. When the oil is left in bulk exposed to the air it gradually becomes "fatty," as it is called technically, or of a gummy consistency. Exposures of different periods will give any grade of hardness between these two. Other vegetable oils act in the same way, and many attempts have been made to take commercial advantage of these qualities. Some, like the manufacture of oilcloths and linoleum, have been very successful. The difficulty experienced heretofore in attempting to use the oxidised oils for other purposes has been the fact that it was mechanically impossible to accomplish the perfect and graded combination of the oxygen with the oil, as might be needed for the different purposes. The general method adopted was to allow the oil to drip from the top to the bottom of a wide suspended sheet of scrim, an open-meshed fabric, while a current of air was driven upon it. By this method the surface of the oil was solidified, but the action did not extend all through it and there was, therefore, a portion of unaffected oil held within, which was fatal to many of the uses which it was known might be made of a more perfect product.

Mr. Charles Grist has perfected a system by which it is asserted that this trouble is entirely overcome, and a large factory has been built where many articles are manufactured from the oils solidified by his process. His method of treating the oil is to saturate a quantity of tow with it, and then, in a centrifugal machine, throw out every particle of the oil except that which clings in minute globules to the fibre of the tow itself. The bunches of tow are then put on grids of metal in a chamber where warm air is forced through them, and in twenty-four hours the oil is thoroughly oxidised. The material is then ground up, mixed with any desired colouring matter and finally rolled out into sheets, in which condition it resembles india-rubber, and possesses many of the qualities of rubber and gutta-percha. It is as resilient as rubber, but not as elastic, is impervious to chemical action, and withstands heat up to 240° F., and it can be vulcanised by the same processes used for rubber and gutta-percha. It has high electrical insulating qualities, and can be used for cable wire coverings and other forms of electrical insulators, and it is made into wheel tires, which are said to be equal to those of rubber. It can be dissolved in ethereal spirits of all kinds, and from these solutions it can be applied as waterproofing coverings for fabrics of any sort.

Editorials.

On the Government Report on the Use of Phosphorus in the Manufacture of Lucifer Matches, March, 1899.

THE condition known as "Phosphorous Necrosis of the Jaws" has for years past occupied the attention of all who are interested in the public health, and it is remarkable that only now, in this year of grace 1899, the Government should have arisen from its slumber, like "Rip Van Winkle," and have made an attempt to realise the situation, and to act in defence of the health of the people—a people in this instance too poor and too weak to help themselves.

The Dental Report is, in our opinion, too voluminous for the general reader, or even for Parliamentary use, but it will doubtless form a useful work of reference on points connected with the dangers attending the manufacture of matches.

The preparation of the Report was entrusted to Professor Thorpe, Professor Thomas Oliver, and Mr. George Cunningham, and information on the subject was obtained from all the countries concerned in the industry, including Norway, Sweden, Denmark, Holland, France, Belgium, Germany, Austria, Switzerland, Italy, Russia, and the United States of America.

Mr. Cunningham has shown himself an ambitious and indefatigable collector of evidence from the dental point of view, and the Home Office is to be congratulated on having obtained his services. As the result of his examination of a number of workers in match factories, both in this country and in France, he reports a deplorably bad condition of the teeth—except in those cases where the employés are under regular dental supervision—a condition which, taken in connection with exposure to the action of yellow phosphorus, is now conceded by every authority to be a *sine quâ non* in cases of phosphorous necrosis of the jaws.

The methods for the prevention of the disease are as well known as the conditions leading to it, but the wants of the public must be satisfied at all costs, and though methodical housekeepers and quiet families may be content to use a match that "strikes only on the box," the general public require something more, viz., a match that "strikes anywhere," and above all, something cheap. The match industry is not one calling for much skill, and the wage of the workers is a fair living one; consequently there has been no lack of supply in the number of workers. Now the habits of the unskilled working classes of large cities, especially in regard to the care of their teeth, are too well known to need description. Add to these arguments the existence in certain factories of ill-ventilated workrooms, in which the greater portion of the working day is spent, and the use of yellow phosphorus, and we find ample cause for the occurrence of the disease. As the prevention of phosphorous necrosis of the jaws is almost entirely a matter of dentistry *plus* improved hygienic surroundings, the recommendations of the dental reporter are the main features for the Home Secretary to keep in view in the event of any legislation being brought to bear upon the subject.

That legislation, however, is not essential to an amelioration of the existing state of affairs, is shown by the action of at least one large firm who have arranged for the supervision of the teeth of their employés by a dentist, without waiting to see what the Government might do in the matter. We hope this example will be followed by other firms, and thus a good action may be blessed by its results.

A great deal of personal labour and a large expenditure of time has been devoted to the arrangement of the Report by Mr. George Cunningham, thus riveting the public gaze upon the facts of the case—which facts have, however, been known to surgeons and dentists any time these twenty-five years or more.

For years the Home Office must have been aware, through its inspectors and others, of the causes, and means for prevention, of the disease, but only now is the veil of obscurity which concealed the habits of the poor being gently raised, and the cloak of indifference laid aside, for the armour of investigation. Such an investigation, and the legislation which we hope will some day spring from it, is the natural outcome of a widespread yearning for sanitary progress and reform throughout every branch of the community. We trust that the commencement of a new century may witness the general institution of a rigorous supervision of match factories and the workers therein, as well as of the lead industry and all similar noxious trades. We look to this result from the concerted action of wise legislators, who realise that the happiest and wholesomest way of acquiring a love for oneself is to begin by loving one's neighbours better.

The Annual General Meeting.

WE hope all our readers have filled up their reply post cards announcing their intention of attending and helping the success of the coming Annual Meeting at Ipswich. Each member should reflect that he may be a secretary some day, and then if ever he has slipped such a card unanswered into the waste-paper basket its ghost will haunt him.

A glance at the business programme of the meeting on page 244 will show that many matters of interest and value will be touched upon. The Presidential Address will be followed by the reports of our two executive officers, the Hon. Treasurer and Hon. Secretary. The publication of the balance sheet has to a certain extent anticipated Mr. Hern's report, and we think it will be a matter of widespread regret that the Association will lose the services of so careful and painstaking a treasurer; other duties of an onerous nature connected with the teaching of surgery to the dentist of the future compel him to relegate to other hands the care of the finances of the dentist of to-day.

The Hon. Sec. will, in his Report, doubtless recapitulate the work of the past year, and offer food for reflection based upon it as to what may be looked forward to in the future. These Reports, and the important recommendations that are generally submitted to the meeting by the Representative Board, will afford ample scope for the discussion of the general business and policy of the Association.

This year two notices of motions appear in the programme. Mr. F. J. Bennett's relating to grants in aid of dental research will be found more fully explained by him in a letter published on another page. In making it he follows closely on the lines adopted by our great and wealthy sister, the British Medical Association. Whether his attempt to introduce such a purely scientific side to the aims and policy of the Association will be entirely successful on the present occasion we will not venture to prophesy. As a motion it is thoroughly deserving of the most careful consideration. Mr. G. Cunningham, in his motion, proposes that the Association shall approach the commissioners of the New Teaching University of London now sitting to establish the various faculties of the University, to petition them to grant a registrable degree in Dentistry having a special title, or, failing that, to alter the curricula required for the Bachelor or Doctor of Science degrees to suit the needs of dentists. Whether the commissioners will accept such a recommendation from the Association, if proposed, in view of the fact that the L.D.S.Eng. is already possessed of an excellent registrable diploma, or whether dentists themselves will care to be attached to a department of mechanical science rather than to the medical profession, are questions which we do not propose to speculate upon now. We understand that the question of recognition of dental surgery in the Medical Faculty has been referred for consideration to the Business Committee by the Representative Board, and it appears to us a matter more fitted for discussion in committee than at a general meeting.

With regard to the papers to be read at the meeting, their titles bespeak matters of considerable interest for the profession at large, and we shall hope to deal with them more fully in future numbers. The desire for crisp, practical papers seems to have been well met on the present occasion under the heading " Short Papers and Demonstrations."

In short, the business programme of the meeting promises well, and if discussions realise expectations, members may return from the meeting with a consciousness of duty done under pleasant circumstances, and with a feeling of enlightenment induced by the contact of mind with mind.

Correspondence.

We do not hold ourselves responsible for the views expressed by our correspondents.

Southern Counties Branch.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—In the Report of the Meeting of the Representative Board on March 4 (JOURNAL OF THE BRITISH DENTAL ASSOCIATION, p. 142), referring to the invitations for the Association's Annual General Meeting of 1900, it is stated that the consideration of the matter was postponed owing to the absence of Members from the Southern Counties Branch. As some members think that this reads as if the Branch was not anxious for the meeting to be held at Brighton, I should be obliged if you would allow me to point out that our President, Mr. Foran, attended the meeting, but that owing to the time taken up by the Royce case, he had to leave before the business, which he specially went up to town to attend to, came before the meeting. Unfortunately I was prevented from attending at the last moment, otherwise the Board would have been assured that the Members of the Branch are entirely unanimous in their invitation.

Yours faithfully,
FRANK V. RICHARDSON.

*Hon. Sec. of the Southern
Counties Branch.*

Dental Education.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—Certain dentists are worrying about dental education; a higher degree is hinted at. Nobody seems able to formulate a definite scheme. It is indisputable that three years is required in which to learn mechanical dentistry. After putting in these three years a dental student is expected to learn the *technique* of operative dentistry in two years, and in addition to this do as much work as a medical student. No one holds that a medical student has not enough to do. Operative dentistry is as difficult to learn and requires as close application as the mechanical branch. Notwithstanding that the best mechanics make the best operators, many good mechanics never become really good operators, and I hold the opinion that owing to the peculiarities of the work, closer and more determined attention and even longer time is necessary to enable a man to reach a high standard of excellence. What I mean is, that if it takes three years to make a good mechanic, it takes as long if not longer to make as good an operator, giving each branch the same undivided attention. The medical studies take up so much time and attention that operative dentistry hasn't half a chance. The fact that the standard of operative excellence is equal if not superior to the mechanical, is due to the general excellence of the dental hospital training, and the proved inefficiency of the instruction given in private practice to the mechanical pupil, and this is, therefore, beside the question. The hospital work of the dental student is being increased, and if this goes on with no increase in the time, how will it be possible for him to gain more than a smattering of things; far better to attempt less and have it better done. By all means increase the standard, but give the men a chance by increasing the time. If, owing to pecuniary reasons on the part of parents and guardians, an increase—and a considerable increase of time, too—is not advisable, be contented with things as they are, or better still, make arrangements for producing a greater combined excellence of mechanical and operative *technique*. This should not be difficult, as in the majority of cases the greater part of the three years' mechanical pupilage is at present wasted. I could formulate a scheme for a seven, or at least a six years' course, or one of four for a pass, and one of six for a higher degree; but have already written at length.

Yours faithfully,
EXCAVATOR.

Grants in aid of Scientific Research.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—It has been felt by some that the time has now arrived, and the dignity of our calling has reached a stage, when some steps should be taken to organise and encourage original research in dental disease.

The type of enquiry we especially aim at encouraging is the short and exact record of facts and experiments, rather than the working out of elaborate speculations and theories.

We desire to absorb into this work a few selected men with qualities and gifts for investigation, and to offer them an inducement to devote some of their time to the work of research, and to encourage the habit of enquiry and experiment whilst the faculties and energies are still at their best.

The remarkable success which has resulted from the system adopted by the British Medical Association, of furnishing small annual grants in aid of research in various branches of medicine and surgery, suggests the idea that a large accession of knowledge would result from a similar application of the principle to the requirements of dental science. It not infrequently happens that for some few years after a long and expensive dental education, men are compelled, by sheer force of circumstances, to put aside the additional expense involved in the conduct of investigations which they would otherwise have been willing enough to undertake. It is therefore suggested that small grants for the purpose either of defraying the expenses of investigation in some public laboratory, or for the purchase or loan of instruments of research, should be made out of the funds of the British Dental Association, and it is thought that a sum of £20 annually, placed at the disposal of a sub-committee and to be used at their discretion, would as a beginning be sufficient to attain this object. The results and records of all work in connection with these grants would, of course, become the property of the Association.

At the annual meeting, therefore, I propose to suggest that the general principle of grants in aid of dental research be approved, and to leave the details to be settled by the Representative Board.

The British Medical Association offers two classes of encouragement, first, the small grant in aid of research, and second, research scholarships of the value of £150 and £200 a year. To the latter we may have a possible parallel, though yielding a lesser sum, in the Tomes' Testimonial Fund, although the ultimate form it is to assume is still open to conjecture. At any rate the grant in aid of research is on an entirely different footing to anything at present existing in the dental profession.

At a time when public attention has been drawn to the disastrous effects of dental caries amongst candidates for the public service, when a parliamentary return shows that in 1898, 1767 recruits were rejected on account of their teeth, it is felt that a condition so grave will, in the public interest, demand special efforts for its solution. The nation will look with confidence to the judgment of the British Dental Association, knowing that it will by all means in its power set in motion any and every method which the scientific spirit of the times suggests as wise and desirable, and it will, we may be sure, approve of any scheme which aims at the development of scientific research.

I am, &c.,

London, April, 1899. F. J. BENNETT.

Association Intelligence.

The Honorary Secretary of the Association desires to emphasise the statement he has on several occasions previously made, viz., that anonymous communications relating to cases of irregular practices, or alleged infringements of the Dentists Act, cannot receive from him that attention he would wish to bestow upon them, or they may deserve.

Annual General Meeting.

PROGRAMME OF BUSINESS.

IPSWICH, MAY 20 TO 23, 1899.

SATURDAY, MAY 20.

9.30 a.m.—Meeting of the Representative Board in the Town Hall.

10.45 a.m.—GENERAL MEETING IN THE TOWN HALL.
Valedictory Address of Mr. W. A. Hunt, President.
Address of the President-Elect, Mr. J. H. Mummery.
The Treasurer's Report.
Election of a new Treasurer.
The Hon. Secretary's Report.
Reports from the Representative Board.
Motions.
And other business.

1 p.m.—Adjournment.

IN THE TOWN HALL.

Papers and Discussions.

2 p.m.—The following papers are down for reading:—

On "Training in Mechanical Dentistry," by J. Smith Turner, M.R.C.S., L.D.S.Eng. (London.)

On "Technical Training in American Dental Schools," by W. Booth Pearsall, F.R.C.S.I. (Dublin). With this paper will be included an exhibition of a collection of specimens received from Dr. Kirk and others in America illustrating the practical results of such training.

On "The Teeth of the Young," by S. Spokes, M.R.C.S., L.D.S. Eng. (London).

5.30 *p.m.—A Meeting of the School Dentists' Society will be held at the Great White Horse Hotel, S. Spokes presiding.*

WHITSUN MONDAY, MAY 22.

9.30 a.m.—MEETING OF THE BENEVOLENT FUND in the Town Hall.
Annual Report of the Committee of Management, by
the Hon. Secretary, Mr. J. Ackery.

N.B.—All members of the Association, as well as subscribers, visitors, and ladies, are invited to attend this meeting.

MICROSCOPICAL SECTION.

President:—Mr. F. J. BENNETT, M.R.C.S., L.D.S.
President-Elect:—Mr. J. J. ANDREW, L.D.S.

PROGRAMME.

The Seventh Annual Meeting will be held at the Town Hall, Ipswich, on Monday, May 22, 1899, at 10.30 a.m.

Papers.

10.15 a.m.—Inaugural Address by Mr. J. J. Andrew, L.D.S.

On "Micro-organisms in Dental Caries," by Mr. K. Goadby, L.D.S.

On "Bacteriology," by Mr. Leon Williams, L.D.S., D.D.S.

On "A Modification of Weil's Balsam Process," by M. J. Choquet, D.E.D.P. (Paris).

On "An Original Modification of Weil's Process for the Preparation of the Hard and Soft Tissues Combined," by Mr. S. F. Rose, L.R.C.P., M.R.C.S., L.D.S.

Lantern Demonstrations and Exhibition of Microscopical Preparations.

By Messrs. J. H. Mummery, M.R.C.S., L.D.S.; F. J. Paul, F.R.C.S.; C. S. Tomes, M.A., F.R.S.; J. Choquet, D.E.D.P.; S. F. Rose, L.D.S., M.R.C.S., L.R.C.P.; Storer Bennett, F.R.C.S., L.R.C.P., L.D.S., and F. J. Bennett, M.R.C.S., L.D.S.

There will be complete arrangements for the exhibition of the above; microscopes and all accessories will be provided, and cases or stands for the display of lantern slides, in addition to a lime-light lantern under the direction of Mr. Lees-Curties, of London.

Gentlemen intending to exhibit are requested to kindly forward, on or before Saturday, May 20, their specimens, *securely packed*, to the Microscopical Room, Town Hall, Ipswich, addressed to the Hon. Secretary, Mr. A. Hopewell Smith.

12 a.m.—General Section resumes.

Paper on "The Trophic Function of the Dental Pulp," by T. E. Constant, M.R.C.S., L.R.C.P., L.D.S.Eng. (Scarborough).

Paper on "Unusual Forms of Chronic Alveolar Abscess," by J. G. Turner, F.R.C.S., L.D.S.Eng. (London).

IN THE PUBLIC HALL, Westgate Street, close to Town Hall.

Short Papers and Demonstrations.

2 p.m.—R. P. Lennox (Cambridge) will show (*a*) "A Pair of Pliers of Original Design for carrying and adjusting a Copper Strip to a Root preparatory to crowning it by the Fusible Metal Mandrel Method;" also (*b*) "A Method of taking Impressions of the Lower Jaw with Composition without drags, in cases where the Molars and Bicuspids lean towards each other across a Gap."

W. H. Breward Neale, L.D.S.I. (Birmingham), will show (*a*) "A Method of constructing Partial Lower Dentures with Special Reference to Prophylactic Conditions;" (*b*) "Regulation Case showing Treatment of Superior Protrusion at an Early Age."

A. S. Underwood, M.R.C.S., L.D.S.Eng. (London), on "Porcelain Inlay Work."

Leon Williams, L.D.S.Eng., D.D.S.Balt., (London), "An Exhibition of Specimens of Conservative Dental Work, viz., Crowns, Crown and Bridgework, Inlays, &c."

George Brunton (Leeds), "A New Matrix Buckle," &c.

W. A. Rhodes, L.D.S.I. (Cambridge): (*a*) "The Uses of a New Crown Impression Tray;" (*b*) "How to insure Accuracy of Adjustment and Occlusion of a Finished Crown."

Vernon Knowles, L.D.S.Eng. (Reading): (*a*) "A New Metal for Polishing Plates;" (*b*) "Mr. H. Hordern's New 'Handy Press';" (*c*) "Further Improvements in the Composition Swaging Flask."

TUESDAY, MAY 23.

IN THE PUBLIC HALL.

Demonstrations.

10 a.m.—"Röntgen Ray Work in the Mouth," by A. F. Penraven, L.D.S.Eng. (Ipswich).

"Coronal and Hyper-contour Amalgam Fillings," by J. C. Wing, L.D.S.Eng. (Ipswich).

"A Home-Made Nose-Piece for Prolonging Nitrous Oxide Gas Anæsthesia by Alfred Coleman's Method," by R. P. Lennox.

"The Prolongation of Nitrous Oxide Gas Anæsthesia by means of a Mouth Tube," by Dr. McHardie and P. T. Naden, L.S.A., L.D.S.Glas. (Birmingham).

"The Prolongation of Nitrous Oxide Gas Anæsthesia," by W. J. Stephens, M.R.C.S., L.R.C.P., and D. E. Caush, L.D.S.I. (Brighton).

In the Town Hall.

2 p.m.—Paper by W. Booth Pearsall, F.R.C.S.I., and G. M. P. Murray, F.R.C.S.I. (Dublin), on "Brittle Platinum Pins in Porcelain Teeth."

Paper by F. Woolnough, Curator of the Ipswich Museum.

Any adjourned discussions.

Concluding business of the Meeting.

NOTICES OF MOTIONS.

By F. J. Bennett, M.R.C.S., L.D.S.Eng. (London):—

"That this meeting approves of the principle of grants in aid of dental research, but leaves it to the Representative Board to decide on the best means of carrying this principle into effect."

By G. Cunningham, M.A., L.D.S.Eng., D.M.D.Harv. (Cambridge):—

"That the Hon. Sec. be instructed to embody the following propositions in a petition to the University of London Commissioners on behalf of the British Dental Association:—

"*A.*—(1) That dentistry should be granted a degree (or degrees) or some like recognition by the New Teaching University of London.

"(2) That the degree (or degrees) should be a separate one in dentistry with a special title;—with a curriculum and examinations different from that of medicine, though taking in some medical subjects.

"(3) That such degree (or degrees) should be registrable in the Dentists' Register by the General Medical Council.

"*B.*—That, failing such a distinctive and registrable degree (or degrees) being granted, the B.Sc. and D.Sc. be accorded with a curriculum and examinations suited for dentists, the D.Sc. only to be given for research work.

"*C.*—That a special Board of Dental Studies be constituted to formulate and regulate the appropriate curriculum and examinations; and that it be a recommendation to such Special Board to increase the scope of the present dental curriculum by including such subjects as Biology, Practical Physics and Mechanics, Applied Dental Technics (Mechanical Dentistry), General Pathology, and Practical Bacteriology."

SOCIAL ARRANGEMENTS PROGRAMME.

FRIDAY EVENING, MAY 19 (*i.e.*, BEFORE THE MEETING).

9 p.m.—Informal gathering of members at the Crown and Anchor Hotel, in the Assembly Room.

SATURDAY, MAY 20.

4.15 p.m. *precisely*.—Steamer starts from the pier for the trip down the river Orwell; returning to Ipswich 6.30 p.m.

8.30 p.m.—RECEPTION by the President and Council of the Eastern Counties Branch of the British Dental Association at the Town Hall (music and dancing).

WHITSUN MONDAY, MAY 22.

Afternoon, 3 p.m.—Ladies' excursion to Stoke Park, Lord Gwydyr's seat. Celebrated Gainsborough pictures, and a fine view of the Orwell. Conveyances will start from the Town Hall.

4 to 6.30 p.m.—Proposed golf match, "British Dental Association *v.* Ipswich," on Ipswich Club Links, two miles from the town.

Mr. R. H. Woodhouse, 1, *Hanover Square*, *London*, *will be happy to receive names of intending players.*

7.30 p.m.—ANNUAL DINNER OF THE ASSOCIATION in the TOWN HALL (*tickets* 10*s*. 6*d*. *without wine*).

8 p.m.—Ladies' Entertainment at the Lyceum Theatre [stalls to witness a performance of "The Liars"].

TUESDAY, MAY 23.

4 p.m. to 6.30 p.m.—President's Garden Party in the Lower Arboretum.

GENERAL INFORMATION.

The office of the Secretary of the British Dental Association will be at the Town Hall, and open on meeting days from 9 a.m. to 4 p.m. Letters and telegrams received there for members.

The headquarters of the Association will be at the Crown and Anchor Hotel, Westgate Street.

A Luncheon will be served daily in the Assembly Room of the Crown and Anchor Hotel (*tickets*, 2*s*. 6*d*. *each*).

All the rooms in the hotel have been already taken by members. Other hotels recommended are:—Great White Horse, Golden Lion, Grand, Waterloo (Temperance).

APARTMENTS (available from May 19 to 23).

Miss Simpson, 57, Berners Street. One double bedroom and use of sitting-room.

Miss Edwards, 45, Berners Street. Two bedrooms and use of sitting-room.

Mrs. S. E. Green, 26, Blenheim Road. One bedroom and sitting-room.

Mrs. Coppard, 9, Fonnereau Road. Two bedrooms and sitting-room.

THE TOWN HALL, IPSWICH.
(Built 1868.)

Mrs. Green, 75, Christchurch Street. One bedroom and sitting-room.

Mrs. Capon, 80, Christchurch Street. Three bedrooms (two large) and sitting-room.

Mrs. Lang, 128, Norwich Road. Two bedrooms and sitting-room.

Mrs. Warren, 11, Cemetery Road. One bedroom and sitting-room.

Mrs. Maldun, 15, Withipoll Street. One bedroom and sitting-room (small).

Mrs. Kent, 11, St. Margaret's Plain. Three bedrooms and sitting-room (gentlemen only).

N.B.—The foregoing list has the approval of the Local Hon. Secretary, Mr. Norris Snell, 11, Museum Street, Ipswich. A further list may be had on application to him.

Prices range from 15s. to £1 1s. each person for the five days—Friday to Tuesday (including breakfast).

DENTAL EXHIBITS SECTION IN THE PUBLIC HALL.

The following dental exhibitors will occupy the main concert room in the Public Hall, viz., Messrs. Ash & Sons, The Dental Manufacturing Company, The Harvard Dental Company, The Dental Therapeutic Company, The Flint Edge Gold Alloy Company, Messrs. Edwards & Company, Messrs. Bayard, Sons & Bayard.

The exhibition promises to be large and of much interest.

NOTICE.

SALOON or saloons, third class, will be attached to the 5 p.m. express train from Liverpool Street Station for Ipswich on Friday, the 19th inst., if a sufficient number of members notify me *at once* of their intention to travel by this train.

37, Queen Anne Street,
London, W.

W. H. DOLAMORE,
Hon. Sec. Metro. Br. B.D.A.

W. B. PATERSON,
Hon. Secretary.

Irish Branch.

A MEETING of the Irish Branch was held in the Dental Hospital of Ireland, Lincoln Place, Dublin, on Monday, March 27 last. Present: Messrs. Daniel Corbett, jun. (President), A. W. W. Baker, J. S. Thomson, G. P. Moore, G. M. P. Murray, G. J. Goldie, K. E. O'Duffy, F. E. Davies, P. O'Meehan, J. Stanton, H. Winder, J. J. Hayden, S. Bishop, C. Wall, F. O. Stoker, F. G. Pakenham, M. F. Thomson, W. G. Story (Hon. Sec.), J. G. Cronyn, G. F. Shaw, S.F.T.C.D., T. Beaumont, F. Costello, W. H. Andrews, E. F. Pasley, J. Cockburn, D. L. Rogers, H. C. Drury, P. Nicholson, J. J. Potter and G. Stirling.

The PRESIDENT (Mr. Corbett) in the course of his inaugural address having dealt with the establishment of dental hospitals in general and the Dental Hospital of Ireland in particular, said he was happy to say the day was well passed when the art of dentistry was a more or less secret one, and when the novice in that art had to content himself with the information his master and sole teacher was willing to impart, or else, out of his own power of observation and experiment, devise a method of practice which would be of service in alleviating the sufferings or repairing the inroads of disease in the teeth of those who sought his aid. The idea of a dental hospital was brought forcibly to the minds of some dentists as a necessity for the better treatment of the poor, and at the same time it seemed to be even more necessary as a means of instructing future generations of practitioners in the art of dentistry. The Government had yielded to the long and rigorous pleadings of their leading dentists for an Act of Parliament requiring the registration of dental practitioners. That Act had caused a wholesome revolution in their profession and had been of inestimable value to the community at large. It had made it necessary for the General Medical Council to formulate a curriculum of dental education and examination. It was also necessary to appoint a Court of Examiners and Lecturers in certain subjects of their speciality, and as these were mostly of a practical rather than a theoretical character they had to provide institutions where these practical procedures could be demonstrated. Mr. Corbett then reviewed their efforts to establish a dental hospital in Dublin, in which work, he said, they had been ably assisted by their dear friend and colleague, Dr. Stack, whose absence they all deplored. Since its foundation twenty years ago the work of their hospital had multiplied many times, but the financial prosperity of the institution remained but visionary. They had to clear themselves of a heavy debt, and find some charitable people willing to advance a few thousand pounds necessary to the completion of the hospital. The Government rightly insisted upon the examination of the teeth of all recruits for the services. In dental hospitals they met with many young patients who subsequently offered their services to the State, and the dentist who cared for the teeth of such rendered a good service to the country, for which he (Mr. Corbett) considered the dental hospitals entitled to some share of State endowment.

Mr. G. F. SHAW, S.F.T.C.D., said he had been under the impression that Americans and Parisians were in the front rank of dental surgery, but he was glad to say, from what he had heard, the British school ranked the highest in the world. In Ireland they had their great soldiers and scholars and athletes, and they should also have their eminent dentists. He was most anxious for the success of their Dental Hospital, and his feelings were shared by his colleagues in Trinity College.

On the motion of Mr. A. A. BAKER, seconded by Mr. KEVIN O'DUFFY, a vote of thanks was passed to the President for his address.

The inspection and discussion of incidents of practice followed.

Mr. BAKER submitted a patient from the hospital. The man was a servant, and a disarrangement of his front teeth and narrowness of the palate rendered his speech so inarticulate that his employer sent him to them for treatment.

Mr. KEVIN O'DUFFY produced two bicuspids of abnormal growth, and a regulation case.

Mr. G. P. MOORE exhibited a case showing the difficulty of extraction of an impacted wisdom tooth in the lower jaw.

The PRESIDENT (Mr. Corbett) produced a model of the mouth of a patient showing a very unusual form of erosion, particularly of the superior teeth. He asked whether a complete change of diet, from vegetable to flesh meat, which the patient had made about two years ago, would cause the injury to the teeth?

Mr. A. W. W. **Baker** submitted an odontome (aberration of the enamel organ), also an odontome from a horse, an example of aberration of the dentine papillæ.

Mr. J. J. **Hayden** read a paper on "The Impaction and Partial Absorption of a Canine Tooth in the Maxillary Sinus."

Mr. A. W. W. **Baker** considered this the most interesting and important communication they had had for a long time, and on the motion of Mr. **O'Duffy**, seconded by Mr. **Story**, it was decided that photographs of the slides should be published at the expense of the Branch.

The proceedings then closed.

Midland Counties Branch.

ANNUAL GENERAL MEETING.

The Annual General Meeting of the Branch was held in the Medical School, Owens College, Manchester, on April 13, 14 and 15. At three o'clock on the afternoon of the 13th, the Council meeting was held in the Grand Hotel, Ayrtoun Street, and in the evening there was a Reception and Conversazione by the Local Committee and Manchester Odontological Society at the Manchester Museum Buildings, Owens College, followed by an informal Smoking Concert at the Grand Hotel.

On Friday, the General Meeting was held in the Medical School, Owens College. Mr. C. **Browne-Mason**, the retiring President, occupied the chair.

The **Hon. Secretary** submitted his report as follows :—

Gentlemen,—Although the past year has not been a particularly eventful one, I am glad to be able to report that a great deal of progress has been made. The work done by the Midland Branch during the past year has been steadily carried on, and satisfactory results will, I hope, ensue.

We have had one less informal meeting than usual during the year, but the Council has met the usual number of times, and several subjects of importance to the welfare of our members have occupied its attention, and been under consideration. The question of the administration of anæsthetics by medical practitioners for unregistered persons has been exhaustively inquired into, and information obtained which cannot fail to be of great service in the near future, and which has already been productive of good.

An inquiry has also been made with the object of obtaining information as to the number of unregistered persons practising dentistry in the Midland Branch districts, and the attention of the Representative Board called to the large number which the reports show to be still so practising. This inquiry shows a very unsatisfactory state of affairs, and opens up a field for the exercise of all our energies if we wish to see the Dentists Act fulfil the purpose for which it was intended.

A considerable number of new members have been elected during the year, and we have only had one resignation. Unfortunately, we have lost two members through death, one being our true and much respected friend, Mr Sidney Wormald. Letters of condolence and sympathy were sent on your behalf by your Council at the time to members of both families.

Our membership now numbers 192.

The British Dental Association has been invited by your Council to hold its Annual Meeting in our district next year. We shall have a reply to that invitation at the Annual Meeting of the Association, which is to be held at Ipswich during next month. Your Council recommend that Mr. Gaddes be elected President for next year, and that Mr. Renshaw be elected your representative on the Representative Board of the British Dental Association.

The HON. TREASURER'S report was as follows :—

Dr. BALANCE SHEET, *December* 31, 1898. Cr.

Dr.	£	s.	d.	Cr.	£	s.	d.
To Balance at Bank, Dec. 31, 1897	40	6	10	By Printing, Stationery, &c., in 1897 (Rochdale)	11	7	3
,, Subscriptions from Jan. 1, 1898, to Dec. 31, 1898 ...	48	16	0	,, Repairs at Technical School, Rochdale (1897)	1	2	0
,, Caledonian Railway Preferred Ordinary Stock Dividend Investments, April 1, 1898, and Oct. 1, 1898	2	6	4	,, Hire of Rooms at Scarborough	2	12	6
,, Interest at Bank	0	15	10	,, Annual Dinner at Scarborough	5	0	0
				,, Hon. Secretary's Allowance and Expenses for 1897 ...	11	18	2
				,, Ditto for 1898	3	14	2
				,, Printing, Postage, Stationery, &c.	5	19	3
				,, Hon. Secretary's Travelling Expenses	2	2	10
				,, Hon. Secretary's Assistants...	10	0	0
				" Hon. Treasurer's Expenses for Postage, &c.	1	8	6
				,, Cash in Hand	0	5	6
				,, Bank Commission, &c., and Cheque Book	0	4	8
				,, Balance at Bank, Dec. 31, 1898	36	10	2
	£92	5	0		£92	5	0

Dr. CAPITAL ACCOUNT. Cr.

Dr.	£	s.	d.	Cr.	£	s.	d.
To Profit and Loss Account, Oct. 27, 1896	78	6	7	By Caledonian Preferred Ordinary Stock, invested Oct. 27, 1896, at $98\frac{5}{8}$ % ...	78	6	7
	£78	6	7		£78	6	7

On the motion of the CHAIRMAN, seconded by Mr. HARDING, the report and balance sheet were adopted.

The election of President for 1900 was then proceeded with. It was stated that the Council recommended Mr. Thomas Gaddes (Harrogate), for the post. Mr. Gaddes was then moved and seconded for the office, the mover observing that they all knew what valuable services Mr. Gaddes had rendered to the province, and that no gentleman could be better fitted to occupy the position.

The resolution was carried with acclamation.

Mr. GADDES said he had urged his friends to prevail upon the Council to nominate some one else better fitted for the office, but as it was their wish that he should occupy the chair next year he acceded to their request, and thanked them sincerely for the honour they had conferred upon him.

The HON. SECRETARY (Mr. Thos. Edwd. King) said the meeting had next to determine the place for the Annual Meeting in 1900, and as Mr. Gaddes had been elected for the Presidency, it had been suggested that the next meeting of the Branch should be held in Harrogate, unless the Annual Meeting of the Association was held in Leeds that year.

Mr. GADDES said Harrogate was a very small town. The only suitable place for the meeting would be the Winter Garden or the Council Chamber, and it might be difficult to secure the latter place. He mentioned this, that the members might not expect too much in the way of entertainment, and so think they had come into a "mare's-nest."

Mr. I. RENSHAW (Rochdale) moved "That the next Annual Meeting be held at Harrogate, but in case the Annual Meeting of the Association is held in Leeds, the meeting at Harrogate be dispensed with, and an informal General Meeting be held at Leeds at the time of the Annual Meeting of the Association for the transaction of the usual business."

Mr. W. E. HARDING (Shrewsbury) seconded the motion, and said if they went to Harrogate, he had no doubt, through the kind offices of Mr. Gaddes, they would be able to get into the "Mayor's Nest."

The resolution was heartily carried.

On the motion of Mr. G. H. LODGE, seconded by Mr. W. E. HARDING, Mr. Isaac Renshaw was re-elected representative of the Branch to the Board.

Mr. RENSHAW expressed himself extremely gratified at this mark of their kind regard for him, and he would endeavour to do his work in the future as in the past.

Mr. ALFRED COCKER moved the election of Mr. Renshaw as Honorary Treasurer, which was seconded by Mr. WILLIAM HEADRIDGE, and carried unanimously.

Mr. David Headridge having been recommended by the Council for the position of Honorary Secretary, Mr. RENSHAW formally moved his election. He said he had the pleasure of moving it in the Council the day before, and had the pleasure to do it again that day. He had known Mr. Headridge many years, and had watched his progress. Whatever Mr. Headridge put his hand to he had endeavoured to push forward with assiduity and ability. Mr. Headridge was very energetic not only in organising for an Association like theirs, but also took a keen interest in the scientific side of their profession. They would find him a very useful man in every respect.

Mr. W. E. HARDING seconded the motion, which was carried enthusiastically.

Mr. HEADRIDGE thanked the members for his election. When the post was offered to him he naturally hesitated, knowing that he had to follow so many good men who had held the office. There were many difficulties in the way, but he had determined, if elected, to do his best for the Association. He hoped he should have the cordial support of all the members.

The PRESIDENT moved a vote of thanks to the Honorary Secretary for his services during the past twelve months, which was seconded and carried unanimously.

Mr. T. E. KING, in expressing his thanks for the compliment, said he had been glad to do the work, and regretted that he could not do it for a longer period.

A vote of thanks was tendered to the retiring Treasurer, Mr. G. G. CAMPION, on the motion of Mr. A. LODGE, seconded by Mr. HARDING.

Mr. CAMPION said in retiring from the position of Treasurer to take the more important one of President, he thanked Mr. Lodge for the way in which he had tendered their thanks, and also the members of the Branch for their kindness during the past. It had been a pleasure to him to do the work. His relations with the members had been most cordial, and in leaving an office of that kind one felt a good deal of regret. His successor would find the position more gratifying than when he (Mr. Campion) took it up.

The election of three members of the Council was then proceeded with by ballot, and resulted in the following being elected: E. P. Collett (Manchester), A. A. Matthews (Bradford), W. D. Moon (Newcastle).

The PRESIDENT then delivered his Valedictory Address.[1]

Mr. W. E. HARDING (Shrewsbury) moved a vote of thanks to Mr. C. Browne-Mason for his services as President of the Midland Counties Branch during the year, and also for his Valedictory Address. In that address Mr. Mason had passed over a great deal of matter which provided food for reflection, and during the past year he had fully maintained the prestige of the Branch, and their thanks were due to him for the able and efficient services he had rendered. Last year they had a very successful meeting in Scarborough. The meeting at Blackpool was also one of the most successful—the most successful by-meeting—he thought they had ever held.

Mr. W. H. WAITE seconded. Mr. Browne-Mason, he said, had won golden opinions while in the office.

The resolution having been accorded unanimously, the PRESIDENT thanked them for the vote. He thought he had made a poor President, but he was very thankful to them for their kindness during the time he had been in office.

Mr. G. G. CAMPION then took the chair, and read his Inaugural Address.[2]

Mr. STOREY moved a vote of thanks to the President for the masterly address he had given them that day. For the second time in the history of the Midland Branch they had the second generation occupying the presidential chair, and he felt sure that everyone would agree with him that in doing what they had, they were conferring an honour upon the worthy son of a worthy sire. It would be out of place for him to discuss the subject-matter of the address—it was not according to their rule to do so—but in moving their best thanks to Mr. Campion they all felt that a year of great prosperity was before them, and that they had a good captain, who would work well so far as that Branch was concerned. The address would afford them food for reflection for some time to come.

Mr. FRANK HARRISON (Sheffield) seconded. It had given him very great pleasure to come and hear that address. To him it was particularly interesting, and he was sure that some consolidated action would come from it, and that the Midland Branch would be able to support such an effort, by doing which it would keep up its old reputation.

Mr. GADDES said they had heard a most able address, a masterly and very closely reasoned address, and one in which the President's conclusions would be difficult to overthrow. The main subject was one in which he had taken great interest for a number of years, and he hoped that after the address had been published the day of reckoning would be nearer at hand than it had ever been. He was quite sure the President of the Midland Branch would add to its further reputation and distinction.

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[1] Published on p. 217 as an Original Communication. [2] See p. 219.

The vote having been heartily accorded, the PRESIDENT thanked the mover, seconder, and Mr. Gaddes for their kind expressions, and the members for their thanks.

The Conference then adjourned for luncheon, at the invitation of the President.

On re-assembling in the afternoon, Mr. F. ROSE read a paper on "Dodges."[3]

The PRESIDENT said he was sure the paper had met with a great deal of approval. The reader had introduced several points which would be new to many of them.

Mr. G. BRUNTON (Leeds) said he had culled a few blossoms from the paper, some of which he would try to give root and room to grow in Leeds. All the "dodges" were valuable—some of them very much so. If he might criticise a little in a charitable way, he would say that from what had been advanced with regard to the form of the double plate, he thought food would lodge in it and would become objectionable. He had never found any difficulty with plaster. He had been trying to think of a substance which he had used in an emergency. He thought it was some malt preparation. It was very sticky, and answered admirably. It was a viscous preparation—probably extract of malt. A piece of lead an inch thick in the work-room was a capital thing upon which to rest a plate for manipulation to prevent it slipping. He also recommended as another dodge for keeping the cheek back, a thick piece of hard blotting-paper. It gave more light and absorbed the moisture. With regard to the use of emery and other polishing things that did not run free between the teeth, a little French chalk at the back of the strip lubricated it.

Mr. GADDES gave a sketch on the blackboard of a readily made "pivot" by taking a piece of "pin" wire and giving it the set required. Around this he said they must bend the pins of a tooth and touch with the soldering bolt, using tin as solder. He also commended the use of osteo with amalgam.

Mr. CARTER (Leeds) favoured the use of amalgam alone.

Mr. W. C. GRAYSTON (Scarborough) said he had found a few things useful. He counselled the use of moist soap rubbed on the emery. If they had teeth very close and found a difficulty in getting the rubber down, let them be touched with a little soap; it was wonderful how well this answered. If they put cotton wool between the teeth let it be covered with rough varnish; this made a smooth surface for the tongue. Thin sewing silk was sometimes better than thick silk. When finishing gold fillings, let them put on a little vaseline, which prevented them heating.

Mr. BRUNTON said with regard to the double plate, if it was air-tight and had to be made red hot again and a hole was not made in it he thought it would burst. To prevent this he should recommend the drilling of a small hole in it. In reply to Mr. Storey, Mr. Brunton said he meant drilling the hole in it before they started to repair. It might save the operator an explosion.

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[3] Published on p. 223 as an Original Communication.

Mr. ROSE, replying on the debate, said with respect to what Mr. Brunton had said, the bursting of the plate was a very likely accident to happen. He had had a plate to repair and no accident did happen, but it might be that a vacuum had been created, and therefore there was no air in it. To prevent a die from slipping he had a hollow in his block, which prevented it absolutely. The "dodge" of Mr. Gaddes was better than his: it was quicker.

Mr. W. CASS GRAYSTON then read a paper on "Further Experiments with Ball-ended Pluggers."[4]

The CHAIRMAN said it seemed to him that Mr. Grayston had treated his subject in a way very often lacking by the readers of papers. Members were often too much in the habit of giving their opinions and impressions, but Mr. Grayston had given them the result of definite experiments, which was the right method. He had listened to the paper with very great pleasure, and hoped Mr. Grayston would continue such experiments and that others would follow his example.

Mr. RENSHAW said for some time past he had been using the round-pointed pluggers. He found that by using the ball-ended pluggers he got more perfect adaptations. The filling was inserted more rapidly. He got a more even surface from the ball- than from the flat-ended pluggers. With regard to Solila gold, it was very useful but was likely to be abused. It could be used like amalgam.

The PRESIDENT asked what means the reader of the paper adopted for testing the consolidation.

Mr. HARDING said he had not had much experience with ball-ended pluggers, but pluggers with a round face he had used for years. He had been shown the advantages of the round pluggers at the Congress in 1887. He thought the walls of a cavity to be filled with gold should be paralleled, and not in the direction of an inverted cone. The shaping of a cavity was most important. The orifice should not be frayed.

Mr. J. P. HEADRIDGE said he approved of the paper. The difficulty with perfectly smooth points was that there was a tendency for them to become gilded. Serrated points were useful to prevent one's hands from slipping. They could get perfect cohesion with hand pressure or mallet. He had never used ball-ended pluggers, but he had used round pluggers and got the same adhesion.

Mr. BRUNTON said he had almost abandoned the use of the mallet and come down to hand pressure. The reason why Mr. Grayston had not got such good results, comparing hand pressure against mallets, was probably owing to using the points for hand pressure of the same size as for the mallet. That was not a fair way of testing the two methods. Finer points were wanted for hand pressure than for the mallet. If they used them they would get comparatively the same results. He had found Solila gold the best he had handled, and had got most perfect fillings with it.

The PRESIDENT said they must not run away into a discussion on the qualities of gold.

Mr. FRANK HARRISON believed that better results were got from warm pluggers than cold.

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[4] Published on p. 229 as an Original Communication.

The **PRESIDENT** suggested the advisability of the reader of the paper continuing his experiments.

Mr. **STOREY** said he was delighted that Mr. Grayston had given them results. Could they not make arrangements at some future time with a few younger men in the profession to take up different forms of filling, and place the results of their experiments before the members of the Branch? He thought it would be helpful to them.

Mr. **COCKER** (Sowerby Bridge) said the paper was practical and thorough. He had always understood that serrations were made for a purpose, and when such serrations were mathematically correct they increased the surface of the gold, and in consequence of that they got a more perfect adhesion. Mr. Grayston had admitted that the round-headed pluggers were not uniformly adapted to all cavities. He had used flat-faced and ball-ended pluggers for the purpose of getting over a difficulty which had been mentioned by Mr. Renshaw. He had had the serrations made on the convex side of a spoon excavator.

Replying on the discussion, Mr. **GRAYSTON** said he had filled cavities in various ways, and then taken a strong excavator and dug out the gold and examined the track made by the excavator with a magnifying glass, and if there was no porosity in it he considered that was as perfect a consolidation as he could make it. It was a test for cohesion rather than consolidation. He had used round-faced pluggers for years, and it had taken him years to arrive at his present mode of working, but they got perfection in the absolute ball. There was no difficulty in using smooth pluggers, but as soon as they began to use smooth-ended pluggers they could not use them unless they were rough, particularly if they used hand pluggers. It was with the perfect sphere they had the difficulty. To stop the gold from sticking to the plugger they should warm it, but he had never found the gold sticking to his pluggers. He had used cross-serrated spoon excavators for years.

Mr. **DAVID HEADRIDGE** then read a paper on "The Need of a Board of Dental Education."[5]

The **PRESIDENT** said the subject was a most important one, but whether a Board such as Mr. Headridge had suggested could be formed, or would be as useful if formed in another way, was of course open to discussion. Many of those present were interested in a Board of Dental Education.

Mr. **GADDES** said the subject was of very great importance to the whole of their profession, and one which he felt must be dealt with within a reasonable time. It was most desirable that there should be some central authority to which dental educational matters should be referred. He agreed with the suggestions in the paper.

Mr. **BRUNTON** asked whether something practical could not be done by the Midland Branch. Would it be wise to make a suggestion to the Branches represented on the Association, asking them to bring the matter forward, or form a small committee of the Branch to make enquiries as to what would be the best methods of procedure? He was glad Mr. Headridge was in favour of the greatest good for the greatest number.

The **PRESIDENT** said he thought action at the present moment would be premature. It was more a matter to originate from those interested in teaching rather than from a body of general practitioners, and the question whether a committee, as suggested, would have the weight they would like it to have was a very open one. Its results would be only useful if, in the first place, they were arrived at by the right men, and if they were adopted by the examining bodies. Mr. Headridge suggested that each school should elect one representative. What guarantee had they that these men were versed in dental education? They all thought they knew something about teaching, but he was afraid it was more difficult than they could imagine. It was a question which would have to work itself out, and the need of it would have to be forced on them before any action would be taken. Would it be worth while to form a committee when no possible weight could be attached to its results? In the Medical Council it was different. They could enforce their decisions, and that gave them responsibility and power. Whether such a committee would have enough influence to pay for the trouble of its formation seemed to him to be an open question.

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[5] Published on p. 233 as an Original Communication.

Mr. COCKER said he should like the matter to be referred to an informal meeting. He was not sure that all men interested in dental education were fitted for the posts they occupied. He could give instances where some such men did not act as men would act if they were fitted for the posts given to them. He should be glad to have the subject deferred.

The PRESIDENT said it would not be necessary to defer it. It would be brought up again.

Mr. W. J. PIDGEON (Bootle) said he did not agree with the President that a committee would have no influence. They might not be able to administrate directly, but surely the weight of their influence would influence those who had the power. Governing power was influenced by general opinion, but whether now was the time to take the steps suggested he could not say. Some of the most able men in their ranks thought it desirable. Some thoughtful ideas might be submitted, and finally be put into practice.

Mr. HEADRIDGE replied. He said he thought the subject before them would have to be well ventilated before coming to a conclusion, but he hoped it would not be long. The question seemed chiefly to hang in the discussion as to whether the body appointed would have weight or not. It would have no weight in a direct sense, because it would not administer or draw up regulations for the course of study of Dental Education, but he thought it would have weight with the General Medical Council in the suggestions it could formulate. He was more convinced of this by the deference paid at the meeting of the General Medical Council in May, when there was much discussion on the subject of dental education, to dental opinion both within and without that chamber. It showed that the opinion of a strong dental board, such as they might nominate, would have great influence with the Medical Council.

The PRESIDENT thought they had had a very profitable afternoon. Their departure from the ordinary course of procedure that morning was a good one. They had had a larger attendance of members and friends than he had previously seen.

Mr. STOREY moved votes of thanks to the Reception Committee, the Local Committee, and officers, for the efforts they had made to secure such a successful meeting.

Mr. RENSHAW seconded the motion, which was agreed to.

Mr. **Renshaw** moved, and Mr. J. W. **Dent** seconded, a vote of thanks to the Medical Council of the Owens College and Manchester Medical Society, for the handsome arrangements which had been made for the meetings of the Branch.

The resolution was carried with acclamation.

In the evening the Annual Dinner was held at the Grand Hotel, Mr. G. G. Campion presiding, and there were present sixty-four members and visitors. Amongst the latter were the Lord Mayor of Manchester (Mr. W. Vaudrey) and the ex-Mayor of Salford (Sir R. Mottram). Letters regretting inability to be present were received from the Mayor of Salford (Mr. Alderman Rudman), His Honour Judge Parry, the Principal of Owens College (Professor Hopkinson). and others.

Saturday, April 15.

The Demonstrations were given in the Materia Medica Museum, Owens College :—

"Gold Fillings, using Strip Matrix," by Mr. G. Brunton, this operation being performed on the "Dental Yorick."

"Prolongation of Nitrous Oxide Anæsthesia, using Coxon's tube," by Mr. Alfred Cocker.

"Gartrell's New Casting Rings, die metal and dies from same ; also the new combined shot and die swager," by Mr. E. P. Collett.

"Finishing Cohesive Gold Fillings with a hand burnisher and tape," by Mr. J. P. Headridge :—

After filling a cavity with gold until the edges of the walls were covered, he demonstrated the ease with which "tape" could be welded to the gold by simply burnishing it in with a warmed flat burnisher. He showed that a dense hard surface could be obtained in this manner, and that layer after layer of tape could be added without fear of the gold flaking. The method, as was originally pointed out by Dr. Ottolengui, is particularly applicable where it is difficult or impossible to use a mallet or where space is limited.

"Continuous Gum Facings for Vulcanite Work," by Mr. Thos. Jackson :—

(1) A piece of perforated platina, No. 4 gauge, is struck up to fit the model, but only round the alveolar ridge ; the plate should not be allowed to come or encroach more than ¼ inch on the palate. Plate is then put on the model.

(2) Case is articulated and waxed up with plate in its position ; the teeth—either pin or diatoric teeth can be used—are mounted, without the wax being put or run on their palatal surfaces.

(3) Then whilst the teeth are thus in position a mixture of sand and plaster is poured on to the palatal surface, which should also be allowed to come over on the grinding surfaces of the molar and bicuspid teeth and the biting edges of the incisor teeth, and to cover about half of their labial and buccal surfaces.

(4) When sufficiently set, scald off the wax and fill up the part occupied by the wax with gum body, and make to shape, fuse it in the furnace ; then when cold put on the gum enamel and "re-fuse" it.

The furnace which Mr. Jackson used was one constructed for 220 volts, and worked splendidly. It was under absolute control, the heat being very gradually "got up" to drive off the damp of the case, after which the heat was more rapidly increased by the insertion of the different plugs, until fusing point of the gum body and enamel was reached, which was obtained in fifteen minutes, starting with the furnace cold.

A novel point in this furnace is that *no rheostat* or *resistance frame* is required, thus saving one half of the cost in the working as well as nearly one half in the initial cost of the furnace. The furnace is also adapted for 100 volts, and is made to stand rough usage. Mr. Jackson has also brought out a small furnace just sufficiently large to take a fairly sized "bridge," or for crowns.

"Dall's Inlays," by Mr. T. Mansell:—

Mr. Mansell demonstrated with what ease Dall's inlays could be inserted, and how superior in an artistic sense they were over gold or plastic fillings, a claim which was fully established by the beautiful result attained in this demonstration.

"The Making of Metal Plates for Dental Purposes by the use of Messrs. Ash & Sons' Swaging Press, with Duchschere's Differential Lever Action," by Charles Rippon :—

He showed how easily and successfully any kind of denture could be swaged, and especially commended it for producing a more perfect adaptation and dead fit, either in partial or edentulous cases, than could possibly be effected by the use of hammers. Mr. Rippon swaged several difficult cases in No. 7 gauge brass plate, and mentioned that plates struck up in the swager were less liable to warp when submitted to the flame than when struck up with the hammer. In plates swaged with the hammer the metal is unequally pressed. Consequently such plates lack permanency of shape under fire, and warping is more or less the result; when teeth are soldered to them, other points of advantage may be mentioned in the ease of working and absence of noise, as in hammering.

"A Simple Method of Treating Gold Filings and Melting same for Plate; also melting up sovereign gold and scrap gold for plate," by Mr. John Taylor:—

Mr. Taylor gave a very interesting and practical demonstration. He melted two ounces and a-half of "sweep" into ingot for band gold, after boiling the filings in nitric acid and carefully washing; he advised a few platinum pins being melted along with the filings in order to make the gold springy for bands. He then melted up some scrap gold, along with two old gold plates, and impressed upon those present the importance of pickling this gold in hydrochloric acid, as any trace of lead or the base metals made the gold very brittle and unworkable for plate. He afterwards melted up five sovereigns along with sufficient alloy of silver and copper to reduce the standard to eighteen carat.

The whole of the demonstrations were satisfactory and very much appreciated by the members of the Branch, who hoped that work of this kind would in future be brought more frequently before them.

At the conclusion of the demonstrations the members and friends had lunch together at the invitation of the local members. This brought to a conclusion the pleasant gathering of 1899.

The following seventy-eight members attended during the meeting:— Messrs. G. H. Anderson (Eccles); E. A. Bradbury (Huddersfield); G. Broughton (Patricroft); W. Broughton (Eccles); C. Browne-Mason (Scarborough); G. Brunton (Leeds); T. Buckley (Oldham); G. G. Campion (Manchester); J. H. Carter (Leeds); Alf. Cocker (Sowerby Bridge); Arthur Cocker (Halifax); E. P. Collett, C. B. Dalby (Manchester); T. S. Davison (Darlington); J. W. Dent (Stockton-on-Tees); J. J. Dickie (Oldham); J. S. Dickin (Southport); W. Dougan, J. W. Dunkerley, W. Dykes (Manchester);

R. Edwards (Liverpool); T. Gaddes (Harrogate); W. H. Gilmour (Liverpool); Wm. Cass Grayston (Scarborough); W. E. Harding (Shrewsbury); F. Harrison (Sheffield); W. Headridge, P. Headridge, J. P. Headridge, D. Headridge (Manchester); S. D. Hey (Leeds); W. A. Hooton, E. Houghton (Manchester); T. Jackson (Lytham); J. H. Jones (Sale); W. H. Jones (Levenshulme); T. E. King (York); P. A. Linnell (Manchester); G. H. Lodge (Rotherham); J. W. Lumley (Kirby Moorside); T. Mansell (Birkenhead); W. E. Margetson (Dewsbury); F. Masters (Manchester); W. Marston (Leeds); L. Matheson (London); A. A. Matthews (Bradford); J. H. Matthews, F. W. Minshall (Manchester); S. Mitchell (Dewsbury); C. R. Morley (Manchester); E. H. Mountford (Birkenhead); T. Murphy (Bolton); W. Marston (Leeds); H. W. Norman, H. Planck (Manchester); W. J. Pidgeon (Liverpool); F. E. Pritchard (Bradford); I. Renshaw (Rochdale); C. Rippon (Dewsbury); F. Rose (Liverpool); T. W. F. Rowney (Derby); T. E. Sherratt, W. Simms (Manchester); G. Nash Skipp (Sale); J. C. Storey (Hull); W. Somerville-Woodiwis (West Hartlepool); J. Stephenson (Manchester); John Taylor, W. Taylor (Batley); A. P. Wallis (Doncaster); W. H. Waite (Liverpool); F. Walker (Manchester); A. B. Wolfenden (Halifax); N. Washbourne (Ripon); J. A. Woods (Liverpool); R. Woodward (Radcliffe); D. Wormald (Bury); R. L. Young (Leeds); and there were in addition over twenty visitors who signed the attendance book.

Midland Counties Branch.

LEEDS AND DISTRICT SECTION.

THE second Annual Meeting of the above Society was held in the Grand Restaurant, Leeds, on April 25, 1899. The meeting opened at 2.30 p.m. with an exhibition of swagers, electrical furnaces and other apparatus and instruments, with demonstrations by the following members:—Mr. G. Brunton, "The Shot Swager;" Mr. Thomas Jackson, "Electric Furnace"; Mr. E. J. Ladmore, "The Humby Swager and Electric Engine"; Dr. G. H. Lodge, "The Grundy Swager"; Mr. S. Mitchell, "Electric Furnace"; Mr. A. A. Matthews, "A Sheet Wax Cutter"; and Mr. C. Rippon, "The Ash Swager"; Mr. A. H. Rutterford, of Leeds, had a good selection of dental instruments and materials, and Mr. Branson (Messrs. Reynolds & Branson), showed many interesting radiographs and some new forms of radiographic apparatus.

At 5.30 p.m. the business meeting was held, the PRESIDENT (Dr. T. Gaddes) in the chair. The minutes of the last Annual Meeting having been read and confirmed, the Treasurer and Secretary were called upon for their reports. It was proposed by Mr. T. HEADRIDGE, seconded by Dr. LODGE, and agreed, that the reports as read be accepted and entered on the minutes of the Society. In supporting, Mr. BRUNTON referred to the mention that had been made by the Secretary of the full report of the proceedings in the Journal of the Association, and he felt it was a valuable concession by the editor, considering the demands on the space at his disposal.

Notice having been given, Mr. E. J. LADMORE proposed, Mr. J. C. BIRCH seconded, and it was agreed, that the bye-laws be amended whereby the financial year shall terminate with the Annual Meeting.

A motion to amend the Bye-laws was down in the name of Dr. Lodge, and he moved that the office of Vice-President be created; this being carried, he further moved that there be two Vice-Presidents, that the retiring President become Vice-President for the ensuing year, and that the other Vice-President be elected at the Annual General Meeting. These resolutions being put formally to the meeting and agreed to, it was decided to amend the Bye-laws in accordance with them.

The election of officers was then proceeded with, and the recommendation of the Committee, namely, that Mr. E. J. Ladmore be elected President for the ensuing year, was put from the chair and carried with acclamation.

It was proposed by Dr. LODGE, seconded by Mr. J. TAYLOR, and carried unanimously, that Mr. Brunton be elected to the office of Vice-President.

Mr. C. Rippon was elected Honorary Treasurer, and Mr. A. A. Matthews re-elected Honorary Secretary.

The ballot for the Committee was next taken, resulting in the election of the following:—Messrs. W. Taylor, W. R. Birkett, W. E. Jefferson, G. H. Lodge, S. Mitchell, and C. Naylor.

Votes of thanks to the retiring officers brought the meeting to a close.

There was a good attendance at the meeting, the attendance book being signed by twenty-eight members and friends.

The Annual Dinner was held at the Grand Restaurant, covers being laid for twenty-seven, the President in the chair. The visitors included Dr. Scattergood (Dean of the Medical School), Mr. I. Renshaw (Rochdale), Mr. D. Headridge (Manchester), and Mr. T. Jackson (Burnley). After the toast of "The Queen," Mr. RENSHAW proposed "The Leeds and District Section and its President," responded to by Dr. GADDES; "Our Visitors" was proposed by Mr. J. C. NAYLOR, and responded to by Dr. SCATTERGOOD. After dinner members were entertained by the gramaphone.

Metropolitan Branch.

A MEETING was held on Tuesday, April 18, 1899, C. WEST, Esq., President, in the Chair.

The SECRETARY read the minutes of the last meeting, which were confirmed.

The PRESIDENT announced that the Council had nominated Messrs. P. W. Greetham, W. Hern, W. R. Humby, and L. Matheson, as candidates for seats on the Representative Board.

In the unavoidable absence of Mr. T. Coysh, the SECRETARY read for him his paper on "The Treatment of Pulps and Pulpless Teeth,"[1] which was postponed at the last meeting.

An interesting discussion followed, in which the following gentlemen joined:—Messrs. West (President), Rushton, Gill, Goadby, Torpey, Dunmayne, and Humby.

The PRESIDENT next called upon Mr. Rushton, in the unavoidable absence of Mr. P. W. Greetham, due to illness, to open a discussion on the question of the action, if any, which the Branch should take in endeavouring to dissuade medical men in the metropolitan district from giving anæsthetics for unregistered dentists or for those who advertise.

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[1] This paper with discussion will be published in a future number of the Journal as an Original Communication.

Mr. RUSHTON: I am not at all conversant with this question, and I only knew I had to speak upon it just before I came in this evening. But what I have to do is very simple—it is merely to read you these papers which I have before me. I have no doubt that we have all received this notice from the General Medical Council about administering anæsthetics:—

"(B.) *Notice issued in accordance with a Resolution passed by the Medical Council on December* 1, 1898:—'Any Registered Medical Practitioner who knowingly and wilfully assists a person who is not registered as a dentist in performing any operation in dental surgery, either by administering anæsthetics or otherwise, will be liable, on proof of the facts, to be dealt with by the General Medical Council as having been guilty of infamous conduct in a professional respect." This has only been sent to registered dentists. It has not been sent to medical practitioners, and it has not been sent to unregistered dental practitioners. It seems to me that the two people to whom it should have been sent, were it possible, are medical and unregistered dental practitioners, because the matter only relates to those two classes of people. The Council of this Branch seems to think—or Mr. Greetham, who is on the Council, seems to think—that something ought to be done. As a precedent for the action he contemplates I will read you a letter which was sent to the hon. sec. of the medical societies in connection with the Southern Counties Branch of the British Dental Association a short time ago:—"Dear Sir,—I am directed by the Council of the above to ask your kind assistance in bringing forward for discussion at an early meeting of your Society the subject of the appended resolutions which have been passed by other medical societies. If your Society should see its way clear to come to a similar determination and to deem it unprofessional for your members either to meet in consultation, recommend to their patients, or administer anæsthetics for (1) unregistered practitioners of dentistry; (2) dentists who advertise; our Association feels that that action would not only do much to preserve the best interests of the medical profession, but would also be of great assistance to the public in educating them to avoid those persons who are either illegally or unprofessionally practising dentistry." On the other side of the paper are some resolutions which have been printed and incorporated with it. The Oxford and District Branch of the British Medical Association has resolved that: "The members of this Branch agree that they will not assist professionally, meet in consultation, or administer anæsthetics for, the members of the dental profession who advertise." The York Medical Society has resolved: "That this meeting (April 25, 1894), consider it unprofessional for registered medical practitioners to administer anæsthetics for unregistered dentists." Similar resolutions have also been passed by the Dundee and District Branch of the British Medical Association, the Reading Pathological Society, the Newbury and District Medical Society, the Reading and Upper Thames Branch of the British Medical Association, the Sydenham and District Branch of the British Medical Association, the Thames Valley Branch of the British Medical Association, the Eastbourne Medical Society, and the East Kent District Branch of the British Medical Association. The *British Medical Journal* is quoted, pronouncing it unprofessional to administer anæsthetics, &c., for unregistered practitioners of dentistry. Mr. Greetham thought that the Metropolitan Branch might take some similar course of action in sending a notice to the hon. secs. of medical societies in the metropolitan area. One course which might be open to this Branch is to send a letter to secretaries of metropolitan medical societies. The other methods which have been suggested would be for this Branch to petition the British Dental Association to ask the General Medical Council to send the notice to all medical men on the Register. Another idea is for the Branch to petition the General Medical Council to send a notice to all medical men on the Register, and failing this that we might either do it ourselves by subscription—which would be an expensive thing—or instead of sending it to the hon. secs. of the Medical Societies, we might send it individually to all the medical men in the metropolitan area. I have now very briefly, and I am afraid very incompletely, given you some idea of what has been done and the suggestions that have been made, and the matter is now open for discussion.

Mr. SCHELLING: May I ask Mr. Rushton whether this notice has been copied by the medical papers, and if so whether it has been circulated by that means, because, if so, it will reach most medical men.

Mr. GILL · As a member of the Southern Counties Branch and a member of the Council when that resolution was prepared and sent out, it may be of interest to the members if I mention a little more about the result. The result, so far as the Societies were concerned, was, I think, very satisfactory. The vast majority decidedly agreed to all this, but the practical outcome of the thing, I think, has been to a considerable extent a failure, because I have taken care to ask different men if they know of any cases where this conduct is continued, and they certainly find that there has been practically no alteration. The practical outcome is that the Societies agreed that a medical man should not administer an anæsthetic for an unregistered or an advertising dentist; but that does not prevent medical men going to these places, and even administering the anæsthetic when their patients ask them to do so. I do not think at present that the mere passing of those resolutions by the Societies has any practical result. The outcome, I am afraid, is not what one would anticipate. The question is whether it would not be very much more beneficial if we could, as a body, memorialise the Medical Council to take the thing up in very much the same spirit, and perhaps with more vigour than they have with the question of unqualified assistants. I think if all medical men were informed by the Medical Council that any attendance of unqualified men or advertising men would be considered a serious matter, that that would be of much more use.

Mr. DOLAMORE: I think the action of the Southern Counties Branch has been of some use, because it has elicited from the Medical Council the resolution which Mr. Rushton has read to-night. Although it has not been sent to medical practitioners it has been suggested that we should collect these notices, and if we know of a medical practitioner who is in the habit of associating with an unregistered dentist, we should send one to him by registered post, and if he persists in this conduct we should bring the matter before the Medical Council. That really is the only efficacious way of stopping this sort of thing. Probably the majority of medical men have read this notice, and if that is not enough for them the only thing is to bring individual cases before the Council in order to prove that this notice is not a dead letter.

Mr. GOADBY: The resolution as passed by the Medical Council was published in the *British Medical Journal* and the *Lancet* of last year, and I think the early part of this year. Under these circumstances I think most medical men certainly who read their papers at all and follow the proceedings of the Council, are aware of the facts of the case, and I quite agree that the proper thing to do, instead of spending money in memorialising various people, is to spend it in bringing them to book before the Council.

Mr. BAKER: I propose that we should communicate with the Society of Anæsthetists.

The SECRETARY: May I point out that any resolution to that effect would come from the Branch perhaps with greater effect than from private individuals. If as an outcome of this discussion any member wishes that such action should be taken he could move a resolution to that effect.

Mr. HUMBY: One member says he knows of several instances where unregistered men have been assisted in their illegal practices by gentlemen in the medical profession. Could we as a body bring the matter before the Medical Council in such a way as to secure the erasure of their names from the professional list? It seems to me that the Medical Council are treating the matter in a superficial way. If they will allow these men to assume the position of dentists, and get the emoluments which should only be got after a proper education, how can we hope they are to pay any attention to any representations of ours with regard to individual cases? We know men who employ hundreds of unqualified assistants. Does anybody sympathise with us? Do the Medical Council think of these things? I quite agree that this is the right course to take if we had any chance of its being attended to by the Medical Council.

The PRESIDENT: I must point out that the Medical Council cannot deal with unqualified men, but only with medical men who assist unqualified men.

Mr. SCHELLING: I think Mr. Humby must have forgotten that the Medical Council have induced the Lord Chancellor to bring in an amendment to the Companies Act.

Mr. HUMBY: I was not aware of that.

The SECRETARY: I think the only hope of our bringing these cases before the Council with any chance of success is in providing ourselves with sufficient evidence. It is no use a man sending up a case anonymously or saying, "I know So-and-so is doing such and such a thing, but I will not appear." If the members want a medical man to be convicted they must be prepared either to send in a written statement, or themselves appear and give evidence, and that is the difficulty. It is very difficult to get members to come up to the scratch when it is a question of publicly associating themselves with the matter.

Mr. SPOKES: One does not like to rise to speak on behalf of the General Medical Council, but I would like to point out that the position has really somewhat improved, and that at the present moment there is upon that body a gentleman whom we very highly respect as one who was in practice and who is still in very close touch with all dentists. Therefore I think if the case is put properly before the Council the result will not be in any doubt at all. The only thing, as Mr. Dolamore says, is to make sure of the facts, and then I have no doubt the Council will act. It must be remembered that the Council cannot act as a prosecutor of unqualified men; it has the control of the Register and of certain educational matters, and it controls the discipline of qualified men, but it cannot act as the prosecutor of unqualified and unregistered men.

Mr. **GOADBY**: I think the wording of the Dentists Act makes the Medical Council prefer the allegation to come from a collection of persons rather than from a private individual, and therefore I think if a Committee were appointed to collect evidence and bring it up before the Council something might be done in that way.

Mr. **GILL**: I think the chief difficulty with Mr. Dolamore's suggestion is this: of course we know that if any man could be persuaded to come forward and become common informer against a medical man, there is no difficulty in getting the latter dealt with by the Council, but on the other hand I think you will find that in the metropolitan district (outside the West End) and in the country districts, it is a difficult thing to get a man to do so. People here really do not realise how bad it is in the country districts; it is there that the greatest damage is done to the qualified man, and it is there that the qualified man feels it. But it is also there that the qualified dentist is a single individual by himself, and if he acted as common informer against any one medical man in that district it would put him into a position which I do not think any man in the Metropolitan Branch would care to participate in or to be even indirectly connected with. It is a very disagreeable thing for a man who poses practically as a member of a branch of the medical profession to come forward and cause a prosecution against a member of the Royal College of Surgeons. It would be a great deal better if the Council could employ a common informer to work up the cases in the proper way, and then bring the matter before the Council. In the country the anæsthetist in dental operations is the patient's local medical man, who goes to whomsoever the patient wants him to go to, and does not trouble whether he is qualified or registered. It is that class, I think, which is really being pointed to in that paper.

Mr. **RUSHTON**, in reply, said: I am afraid that I have not much to answer to. This is a subject which I have not given much attention to at any time. Mr. Gill, I think, says it affects provincial practitioners more than metropolitan ones, but I think it affects some metropolitan practitioners very much more than others. Mr. Goadby's idea of a sub-committee to deal with this matter would be a good one, I think. I will not propose any resolution myself, but I do not see why one should not be brought forward. In reply to Mr. Schelling, I have seen many resolutions of local societies in the *British Medical Journal* in reference to this matter. Whether they have all appeared I do not know, because many of these small associations do not belong primarily to the British Medical Association. I should be inclined to think with Mr. Dolamore that most men on the Register have seen the decision of the General Medical Council at some time or other. Mr. Ellwood, who wrote to Mr. Dolamore on this subject, says he looks upon the action of the Southern Counties Branch as a very successful action. Mr. Gill's suggestion as to recommending the General Medical Council to send a notice to all medical men is one which is brought forward in my original remarks. With regard to the Society of Anæsthetists, I do not think any harm can be done in approaching that body, but I think that only a small number of them probably have anything to do with unqualified and advertising practitioners. It is the general practitioner in the country who gives anæsthetics for his own patient, and who is not much concerned who the dentist is, so long as the patient is attended to, that we have to deal with. I do not think the General Medical Council is quite so much in the clouds as it used to be. I think that men like Horsley and Tomes are looking after our interests, and that the Council will do very much more work of a practical kind in the future than it has done in the past.

The PRESIDENT: You will be glad to hear that the Council have admitted twenty-three new members of the Branch and sixteen members of the Association. It now only remains for me to sincerely thank, on your behalf, Mr. Coysh for his very interesting and able paper, and also Mr. Rushton for so kindly stepping into the gap due to Mr. Greetham's illness, and also to thank those gentlemen who have taken part in the discussion.

Southern Counties Branch.

THIS Branch held their usual spring meeting at Tunbridge Wells on Saturday, April 22, when they were hospitably entertained to luncheon by the Tunbridge Wells members. Amongst those present were Messrs. J. C. Foran, Dr. Walker, W. B. Bacon, Frank Bell, Leslie Maxwell, John Pearse, P. Burton, T. H. Wilkinson (Tunbridge Wells); W. Barton (Eastbourne); F. H. Van der Pant, J. H. Redman, H. J. Kluht (London); F. H. Ellwood (Redhill); G. H. Bowden (Reigate); H. Beadnell-Gill (Norwood); J. H. Reinhardt (Brixton); J. F. Rymer, W. Harrison, J. Wood, J. Dennant, W. R. Wood, D. E. Caush, A. W. Roberson and F. V. Richardson (Brighton); G. O. Richards (Richmond); Morgan Hughes (Croydon); Vernon Knowles and A. L. Goadby (Reading); A. King (Guildford); Chas. Foran (Southsea); H. Kenyon-Jeffs (Clapham); F. J. Dumayne (Lee); A. R. Henry (Hastings); Martin Henry (Folkestone); E. D. Bascombe (Bournemouth); W. D. Amoore (St. Leonards-on-Sea); C. R. Amoore (Dover); F. R. Flintan (Weybridge); R. B. Hardy, and others.

During the Council Meeting numerous members availed themselves of the invitation to go over the Borough Electric Light Works.

Mr. FRANK BELL read an instructive paper on "Porcelain Inlays," which was ably discussed by Messrs. Richards, Ellwood, Caush, Reinhardt, Harrison, Hughes, Maxwell, Knowles, Walker, Henry and Pedley.

Mr. GILL opened a discussion on Mr. Dennant's paper on "Dental Education" (read at the Bournemouth meeting), which was continued by Messrs. Hughes, Rymer, Richards, Redman, Caush, Walker, Bell, Reinhardt, Harrison, Wood and Kluht; after which Mr. Dennant replied.

Mr. CAUSH read the following short paper on "A Method of Prolonging Nitrous Oxide Anæsthesia":—

"The apparatus for this purpose consists of a gag, to which is attached a metal tube, and connected with the rubber gas-bag by means of a piece of rubber tubing. The method of using is as follows:—As soon as the face-piece is removed from the patient's face the gas continues to pass into the mouth through the gag in quantities governed by the amount of pressure upon the rubber bag, and prolonging the anæsthesia from 1½ to 2½ minutes. The advantages are, prolonged anæsthesia; the tube being attached to the gag, there is no time lost in placing it into position after the face-piece is taken away; there is no possibility of lacerating the patient's mouth if the head is moved about during the operation; it remains more secure in position than if a tube is held in the mouth; is much less in the way of the operator, and gives the administrator the opportunity of assisting the operator."

The annual meeting will be held at the Pavilion, Brighton, on Saturday, June 24.

10 o'clock.—Council Meeting.

11 o'clock.—General Meeting; "Council's Report," 1898-99; Hon Treasurer's Report; Mr. Foran's "Valedictory Address"; Mr. Wood's "Inaugural Address"; Election of Officers, &c. Papers and casual communications have been furnished by Messrs. D. E. Caush, T. H. Elliott, W. Harrison, F. E Lambert, E. L. Norris, J. F. Rymer, A. Roberson, and W. R. Wood.

1 o'clock.—Luncheon, at the kind invitation of the President-elect, Mr. John Wood.

2 o'clock.—The President-elect, Mr. John Wood, invites the members to join him in an excursion to Rottingdean by the electric sea-going car, starting from the Aquarium by the electric railway. (The working of both the car and the railway will be explained by Mr. Magnus Volk, E.E., the inventor and constructor.

6 p.m.—Dinner (tickets 7s. 6d.).

Nominations for the Council must be sent in to the Hon. Sec. by June 10.

FRANK V. RICHARDSON,
Brighton. *Hon. Sec.*

Western Counties Branch.

THE spring meeting of the Council was held at the Choughs Hotel, Yeovil, on Saturday, April 29, at 3 p.m. Mr. W. A. HUNT, the President, was in the chair. Also present were Messrs. Browne-Mason, Dudley, Genge, Goard, E. Goodman, Helyar, Kendrick, Laws, H. B. Mason, Rogers, Sanders, Gill, Williams, and Yates. Mr. Mallet wrote regretting absence.

The minutes of the last meeting were read and confirmed.

The PRESIDENT stated that a circular in accordance with a resolution passed at the last meeting had been sent to the various local Branches of the British Medical Association, and had received favourable consideration.

The HON. SECRETARY read a letter from Mrs. McAdam thanking the Council for the resolution of sympathy in the death of Mr. McAdam sent to her.

The HON. TREASURER reported he had £32 15s. 7d. as balance in hand. It was resolved to send one guinea as a donation to the South Wales and Monmouthshire Branch.

The date of the Annual Meeting was fixed for July 21 and 22.

It was resolved that the list of members be circulated after the Annual Meeting.

The necessary routine business was then transacted.

The following gentlemen were elected members of the Association and Branch:—Messrs. Stringfellow (Taunton), Quintin Miller (Hereford), and J. F. Bushnell (Cheltenham).

At the conclusion of the Council meeting a meeting of members was held, and the Councillors were joined by Messrs. W. H. Goodman, H. Helyar and E. Stringfellow.

Mr. N. Lean (Plymouth) wrote regretting inability to be present.

Mr. **HUNT** showed a rotating swivel, made of a special alloy prepared by Messrs. Johnson and Mathey. The hole was bored excentrically to allow of the greatest movement, and to prevent an uneven surface being rubbed. He had never seen one worn through. Mr. Hunt also showed models of a European and an African mouth in which the teeth were good, but the comparison was much in favour of the African in point of size. In the lower jaw of the African there was a marked irregularity in which the canines were being crowded out. This fact, perhaps, demonstrated that the African who had come under the influence of a higher civilisation was beginning to obey the law, viz., that the animal powers deteriorate as the mental advance.

Mr. **DUDLEY** showed model of a supernumerary by the side of the left upper molar.

Mr. W. H. **GOODMAN** showed model of supernumerary between the centrals and a lateral with a well-marked cusp.

Mr. **KENDRICK** showed a model of a mouth that had been injured by a kick of a horse in the face. Both centrals, left lateral, left canine and first bicuspid had been knocked completely out, as also was the alveolar process of this part. The lower jaw was broken on the right side. He made a small denture for the upper after the face had made a most remarkable recovery, as is frequently the case in injuries of the soft tissues of the face. He treated the fracture of the lower jaw with a vulcanite splint, as the case did not come under him until the fifteenth day.

Mr. **HELYAR** (Clifton) showed a specimen of bridgework.

Mr. **HELYAR** (Yeovil) showed a model of a mouth of a girl, aged 18, displaying marked arrested development, only one of the six permanent centrals being erupted. He also showed a model of the mouth of a girl, aged 15; every tooth in the upper jaw was extensively decayed, and only six teeth in the lower jaw had escaped.

Mr. **HUNT** entertained the members of the Council at luncheon, and the members dined together in the evening.

Eastern Counties Branch.

ANNUAL MEETING, 1899.

NOTICE.

THE annual meeting will be held in the Committee Room, Town Hall, Ipswich, on Saturday, May 20, at 2.30 p.m. precisely, the **PRESIDENT** (Mr. Sidney Jones, L.D.S.), in the chair. The Council will meet at 2 p.m. precisely.

In consequence of this meeting having been merged in that of the Annual General Meeting of the British Dental Association, there will be no papers or demonstrations this year. Business only will be conducted.

AGENDA.

Minutes of last meeting to be read and confirmed.
Elections.
Report of Hon. Secretary.
Report of Hon. Treasurer.

Report of Hon. Treasurer of Reception Fund.
Installation of new President for 1899-1900 (Mr. W. H. Hope).
Other business.

A. HOPEWELL SMITH,
Hon. Sec.

Scottish Branch.

THE Annual Meeting of the Scottish Branch will be held at the Palace Hotel, Inverness, on Friday and Saturday, June 9 and 10. The usual formal business will be transacted on the Friday evening, while the Saturday will be devoted to an excursion up the Caledonian Canal as far as Foyers, where visits will be paid to the extensive Aluminium Works and to the famous Falls of Foyers. In the evening the Annual Dinner will be held in the Palace Hotel.

Full particulars will be found in the circular issued to members.

The Council suggest the following list of members to fill the vacancies occurring at this time :—*President:* J. Leslie Fraser, L.D.S.Edin. (Inverness); *Vice-Presidents:* W. H. Williamson, M.D. and M.C.Aber., L.D.S.Edin. (Aberdeen); Jas. Stewart, L.D.S.Glas. (Coatbridge); *Members of Council:* Wm. Taylor, L.D.S.Glas. (Glasgow); A. K. Finlayson, L.D.S.Edin. (Edinburgh); R. Keith Common, L.D.S.Edin. (Stirling); W. D. Anderson, L.R.C.P. and S.Edin., L.D.S.Glas. (Glasgow); C. Rees Price, L.D.S.Eng. (Glasgow).

Central Counties Branch.

THE Annual Meeting will take place in Birmingham on Friday and Saturday, June 30 and July 1.

Outline of proceedings :—

Friday, June 30. 4.30.—Annual Council Meeting and election of officers for ensuing year.

5.30—Annual General Meeting and addresses of retiring President (Mr. J. T. Craig, L.D.S.Edin.), and President-elect (Mr. A. E. Donagan, B.A. Cantab., L.D.S.Edin.). Reports of Hon. Treasurer and Hon. Secretary.

7.30.—Annual Dinner.

Saturday, July 1. 9.30.—Demonstrations, &c., at the Dental Hospital.

12.30.—Adjournment for lunch. Afterwards an excursion as usual; it is not yet decided where.

The Hon. Secretary will be glad to hear from gentlemen willing to give demonstrations on the Saturday morning, as early as possible.

A. T. HILDER, *Hon. Sec.*

83, *Edmund Street, Birmingham.*

Reports of Societies and other Meetings.

Odontological Society of Great Britain.

THE ordinary monthly meeting of this Society was held on Monday, May 1, when Mr. J. FAIRBANK, president, presided over a well attended meeting.

The minutes of the previous meeting having been confirmed, the following gentlemen were balloted for and duly elected:—William James Macdonald, L.D.S.Eng. (Weymouth Street, W.), as a resident member; George Owen Betts, L.D.S.Eng. (Cambridge), non-resident member; and Douglas E. Caush, L.D.S.Ireland (Brighton), non-resident member.

PRESENTATIONS TO MUSEUM.

The CURATOR (Mr. Storer Bennett) exhibited several teeth of an early form with tubes evidently for the purpose of retaining the bolts of swivels, which he had received from several members of the Society. He also showed a specimen of a common porcupine skull sent by Mr. Morton Smale, containing very considerable absorption of the alveolus and more or less absorption of the teeth, the absorption of the alveolus showing the thinning and cupping of the bone commonly found in some of the specimens in the museum of pyorrhœa alveolaris. He also exhibited a piece of amateur dentistry, an amalgam concocted from the scrapings of a bullet twenty-five years ago and inserted by an amateur into a lower bicuspid. The specimen was sent by Mr. Frank Morley. The last specimen was a very remarkable odontome, which Mr. Morton Smale had presented to the Society, in the skull of a Cape buffalo. There was a large cystic cavity on the right side. The second permanent molar had never been erupted and the third was lying horizontally with the crown pointing directly backwards towards the pterygoid fossa, which was very much dilated.

A paper was read by Mr. C. B. KEETLEY, F.R.C.S., on the "Limitations of the Gape and its Surgical Treatment." He pointed out that with a normal temporo-maxillary joint, when the gape was narrowed, the restriction was due to either contraction of the skin, mucous membrane, or intermediate structures, or to adhesion due to the removal of the mucous membrane or bone. He gave two cases as examples of procedure in the prevention of contraction due to removal or destruction of skin, and considered that cases of contraction of gape due to causes connected with the skin and subcutaneous fat and fascia presented no difficulty and were of small interest. The class of cases which was of the highest interest was that in which the mucous membrane was principally concerned, and Mr. Keetley exhibited a patient upon whom he had operated. With the greatest care he had cut away the mucous membrane to the left cheek almost from the corner of the lips back to the last molar tooth and above and below to within a quarter of an inch where it was reflected from the alveoli. To his surprise the case healed with the cheek well lined with apparently normal mucous membrane, and with very slight limitation of the gape. At the time of operation traction with catch-forceps did not pull the cut mucous edge more than a quarter of an inch from the alveoli. What he believed really took place was that under the extending influence of the cicatricial contraction which ultimately brought near together the cut edges of the mucous, the narrow strip of that membrane left at the operation widened by interstitial growth, just as the whole sac of skin which contained the body of an infant enlarged till it had room for, successively, the child, the adolescent and the man, or just as the skin of a limb enlarged over the growth of some giant tumour. No silver plates were used. Referring to the Esmarch-Rizzola operation of wedge-osteotomy of the jaw, he thought that operation was held in an undeservedly high position, and that it ought seldom, if ever, to be used at all so long as the temporo-maxillary articulation was not ankylosed. Plastic operations for cicatricial contraction of the jaws with antiseptic precautions he considered ought to do well, and he gave several examples of such operations. The consideration of contraction after facial paralysis and limitation of the gape due to adhesion and contraction after removal of bone he deferred dealing with to a future occasion.

Mr. WILLIAM HERN also showed the case of a boy upon whom Mr. Sutton operated three years ago by removing the right condyle, which operation completely relieved the gape.

The PRESIDENT did not think he had met with a single case of gape which had not recovered of itself. He remembered one case lasting three months from the too forcible extraction of a lower wisdom-tooth. He voided some pus first of all by the excavator and managed to keep the wound surrounded for a few days with a strong solution of carbolic. The patient got impatient and went to see Mr. Paget, who advised him to continue with the treatment. After three months a piece of bone about the size of the top of one's little finger came away and the man recovered his gape.

Mr. KEETLEY briefly replied.

Mr. MAYO COLLIER, F.R.C.S., read a paper on "Deformities of the Teeth and Palate due to Nasal Obstruction." He considered that the theory generally current of such deformities being due to heredity was no explanation at all. It was simply substituting a word or a name for an explanation. If his explanation was correct, there was a means of preventing the disease, and, of course, of preventing a large amount of disfigurement of the palate, teeth, and upper jaw, and of the whole facial expression. Associated with the deformity the septum of the nose was nearly always more or less crumpled or deflected, and, on the advice of Sir Morel Mackenzie, he examined the question very carefully. He examined 1,050 cases, and 90 per cent. of them had some bony deflection of the nasal septum. But, although 90 per cent. were affected in that way, not one in fifty was affected until past the age of 10. All young persons had perfectly straight septa. That went a long way towards counteracting the view of the deflection being hereditary. Sir Morel Mackenzie had examined 2,850 dried skulls in the College of Surgeons, and found that 1,850 were afflicted by a permanent distortion of the bony septum of the nose. It was well known that the nasal septum itself was a small, thin, partly membranous and partly cartilaginous partition in the mid-nasal region, and that its chief office was to expand the mucous area of the nose. Each nasal orifice, provided a stream of air passed equally on both sides, would tend to maintain that thin partition in the mid line. If one side became blocked, then a greater stream of air would pass on one side than the other. The force of nasal inspiration amounted to a certain number of ounces on the square inch. The inequality of the respiration threw a very large pressure on the whole of the area of the septum and so displaced it, and the stream of air passing over the palate into the larynx would draw out a certain amount of air in the closed side of the nasal chamber. Measured by the anemometer there would be about 2½ to 3 lbs. of pressure on the square inch, and taking the septum of the nose as 9 square inches, there would be a force of 3½ lbs. acting on a thin septum 20,000 times a day; and it was not, therefore, surprising to find that the septum was pushed over if one nostril was completely blocked for a considerable time. Not only was the septum pushed over, but there was a force acting on the palate, on the upper jaw, or the nasal process of the upper jaw, and on every wall of the nasal box, acting 20,000 times a day; and a little consideration would show that this force, acting for twelve months or three or four years, was quite capable of causing the atrophy associated with such cases of deformity. Professor Ziem had proved that every obstruction of the nose exerted widely-spread consequences on the development of the skull in young animals, one of whose nostrils he completely closed up for a long time. There was seen a deviation of the inter-maxillary bone and the saggital suture towards the shut-up side; also lesser length of the nasal bone, of the frontal bone, and of the horizontal plate of the palate bone; less steep elevations of the alveolar processes; smaller distance between the anterior surface of the bony auditory capsule and the alveolar process; also between the zygomatic arch and supraorbital border; and smaller size and a symmetrical position of the vascular and nerve canals on the closed side of the nose. The distance of the two orbits from the middle line was unequal, which, as had been observed in men, led to asthenopia, astigmatism, and strabismus. In conclusion, Mr. Mayo Collier trusted that his explanation, associated with the result of Professor Ziem's experiments, would convey the impression that, although many of the cases might be produced by other causes, the disarrangement of the atmospheric pressure on the nose was capable of producing a very serious effect on the growth of the upper jaw.

Mr. STORER BENNETT, with every anxiety to learn as much as was possible on such a subject, confessed he could not feel that he had heard anything at all which was a rational explanation of the appearance presented by the models passed round by Mr. Mayo Collier. Mr. Collier said that up to the age of 10 the septum of a child would be found perfectly straight and that after the age of 10 a certain blocking of the nose occurred which pushed up the septum and deflected it. From that the members were led to gather that the extreme distortion shown by some of the models took place after the age of 10. If, however, Mr. Collier would bear in mind the process of development of the jaws and the eruption of the teeth, he would remember that with the exception of the second molars and possibly the canines, but at any rate the second and third molars, all the teeth were in place before the age of 10. It had never been his fortune to see any case of a child whose jaws were anything like developed up to the age of 10, and incisors and bicuspids and first molars being erupted in anything like a normal condition, and then subsequently an approach to the distortion which was shown by the models. He could not therefore, accept for a moment an explanation such as Mr. Mayo Collier had given. He was unable to follow the extremely profound argument laid before the members by Mr. Collier, of the blocking of the nose on one side causing an increased flow of air on the other side, or that the pressure was at all sufficient to distort substances like bone, especially the bone of the upper jaw, supported as it was by the other nasal bones. The only evidence, as far as he gathered, brought forward by Mr. Collier, was that if an anemometer was put into the blocked side when the patient expired air, it would be seen that there was a variation of the pressure of the mercury. That was quite obvious. But to take the number of inspirations and the amount of variation of the anemometer with each inspiration and to multiply that by the number of inspirations in every twenty-four hours, he did not think was a sufficient proof of the amount of distortion of bone likely to be obtained at the end of a day, a year, or five years. For those reasons, and as it appeared to him those were the principle reasons brought forward in support of the argument, he failed to consider that anything like a fair explanation of what took place had been advanced.

Mr. J. F. BENNETT pointed out that because the condition did not exist at a very early age, it was no sign that it was not hereditary. It was known perfectly well that the child might take on the condition of the parent as its age advanced. There were ample examples of the fact of deformity coming from parent to child occurring at various periods of life, and, therefore, while the father and the mother might have a deformed jaw, and the child, at the age of 6 or 7, have a very well-shaped jaw, it was no argument that the child, at 12, 15, or 20, would not have the same kind of jaw as the father. Therefore, he did not think Mr. Collier had shown that it might not be hereditary. If Mr. Collier's arguments were true, and the blocking of the nasal cavity upon one side was sufficient, he would ask how it was that it did not continue through the whole of life. It was noticed that the deformity, by the time the wisdom tooth was well in position, as a rule, had run through its course and would not increase. How was it, if the nasal cavity continued to be blocked on one side, that the forces which produced the deformity did not continue throughout the whole course of life and become more and more exaggerated as time went on?

Mr. KEETLEY, Mr. SCHELLING, Mr. W. RUSHTON, Mr. BAKER, and Mr. E. J. BETTS also contributed briefly to the discussion; and Mr. MAYO COLLIER having replied, the President, in the name of the Society, thanked Mr. Keetley and Mr. Collier for their valuable papers, and the gentlemen who had taken part in the discussion, and adjourned the meeting to the first Monday in June.

Legal Intelligence.

British Dental Association *v.* Charles Tinn.

THIS was a summons under the Dentists Act, 1878, against Charles Tinn, an unregistered person practising as a dentist at No. 1, Lozells Street, Lozells, near Birmingham. The summons was made before the Aston Bench (Birmingham) on April 28, 1899. The defendant, on the advice of his solicitor, Mr. Turner, pleaded guilty to having taken and used the title "Surgeon Dentist" and the description "Dental Establishment."

Mr. R. W. Turner, barrister, instructed by Messrs. Bowman and Curtis Hayward, appeared for the British Dental Association, and stated that the defendant had been employed by Mr. Apperson, a registered dentist in Birmingham, and that he had undertaken through his adviser not to use the title and description complained of.

The chairman, in announcing the decision of the bench, said that the defendant had no doubt tried to lead the public to believe that he was a specially qualified person within the meaning of the Act, and that under both summonses an offence had been committed. The lenient course the bench was about to adopt would not be followed on other occasions. This case must therefore, act as a warning to the defendant and others. It was the duty of the bench to protect the public, and they would do so. In this case there would be a fine of 20s. and half a guinea costs on each summons.

Reviews and Notices of Books.

VENTILATION. Extracts from a paper on "Hospital Construction," read by Dr. John Hayward before the Liverpool Architectural Society on November 7, 1898. Reprinted from the *Builders' Journal and Architectural Record*, November 23, 30, and December 7, 1898.

The question of ventilation is one which concerns us all, both in our domestic and public life, and the subject is one which offers abundant food for study, involving, as it does, the health, not only of ourselves, but of millions of our fellow-creatures in homes, in hospitals, and in buildings of all descriptions. Dr. Hayward, in his paper, treats of the various methods in use for the supply of fresh air and the escape of foul air in hospitals, open fire ventilation, open window ventilation, natural ventilation, the laws of atmospheric pressure, spontaneous ventilation, &c., with frequent references to the pronouncements of the Government Commissioners. Natural or "spontaneous" ventilation is the scheme he advocates, and in support of this method he says: "That efficient hospital ventilation can ever be automatic and costless may, perhaps, appear really absurd; it is, however, not so absurd as it may appear. This will be evident by reference to the natural laws of atmospheric pressure and of its expansion by heat. In fact, the idea that the atmosphere cannot be caused to pass through a hospital or other building at a rate of emptying and replenishing every twenty minutes, by having the inside warm and the outside cold, with sufficient openings at the bottom and top, is itself absurd to anyone familiar with dynamics.

Annotations.

We have received the report of the Committee of the American Dental Society in Europe, appointed in August, 1898, in which it is stated that resolutions were passed approving of the action of the National Association of Dental Faculties, U.S.A., in appointing a "Foreign Relations Committee," and expressing the thanks of the Society for the acceptance by the National Association of the report of the latter Committee, "and continuing it at Omaha, August, 1898, and creating Advisory Boards in all European countries, with the view that the certificates of foreign students proposing to enter American Dental Colleges, be submitted to the Advisory Boards of the respective countries of which they are citizens or residents."

Other resolutions were also passed expressing the desirability of the possession by foreign students of such a knowledge of the English language as to enable them to comprehend their lectures and teachings, and to pass examinations without the aid of an interpreter.

Approving of the wisdom of requiring a preliminary examination of students from European countries, or suggesting as preferable that each foreign student should present official certificates endorsed by the Advisory Board of his own country, showing him to have passed the preliminary requirements for matriculation as a dental student, "and that they also be subject to the rules of the National Association of Dental Faculties."

Approving of the resolution of the "Foreign Relations Committee" to appoint Advisory Boards. Appointing a Committee upon Dental Education as a permanent Committee of the Society, the said Committee to consist of "all members of the Society who are members of the Advisory Board of the 'Foreign Relations Committee' of the National Association of Dental Faculties."

We regret that the account of the Forty-First Annual Meeting of the Dental Hospital of London, held at the Hospital in Leicester Square, on March 17, was unavoidably omitted from our last issue. Mr. Alderman and Sheriff Alliston occupied the chair. The Committee of Management were able to show in their report a slight increase in the amount contributed to the General Fund during the past year, and by exercising careful control over the hospital expenditure, whilst maintaining its efficiency, were able to transfer a considerable sum to the Building Fund. This special fund is still in urgent need of assistance in view of the heavy expenses which are being incurred in erecting a building which, while guiltless of ornamentation, will be an imposing addition to the architecture of London, and will contain every improvement and convenience that experience and modern science can suggest, in order that the laudable work of the hospital may be carried on with all possible efficiency. A view of the elevation and a complete set of plans of the new premises were presented in the Report for the information of the Governors and Subscribers. To place the Building Fund in a satisfactory position, it was shown to be absolutely necessary that £3,000 be raised during the current year, and the Committee very earnestly appealed for financial help, feeling assured that the hospital, even with its present cramped arrangements, was most useful to a large section of the poorer portion of the community. They looked forward to the time when the completion of the new premises will afford an opportunity for carrying on the work with far greater benefit to the public. Anyone acquainted with the present building will quite appreciate the Committee's desire for more space and improved arrangements when they consider that 63,298 cases were treated in 1898, an increase of 44,043 over the total for 1874, when the hospital was removed to its present site. The Secretary, Mr. J. F. Pink, at the Hospital, Leicester Square, will be very pleased to furnish any information concerning the institution, and donations and subscriptions may be sent to him, to the Treasurer, Joseph Walker, Esq., M.D., or to the bankers, Messrs. Barclay & Co., Limited, 1, Pall Mall East, S.W.

THE Medical Register and the Dentists' Register for 1899 have at last made their appearance; "better late than never." By the delay in their issue much inconvenience has been caused to some of the Hon. Secretaries of Branches, as well as the Executive of the British Dental Association. Let us hope that in the future something may be done to ensure their publication at an earlier date. Surely five months is an unnecessarily long time to wait. The Dentists' Register shows an increase of 129 names over last year, the figures being 4,966 in 1899 as against 4,837 in 1898. The proportion of those dentists registered by virtue of their being in practice before the passing of the Act is 64·78 per cent. in 1899 as against 66·13 per cent. in 1898, thus showing that the steady decrease of past years is being maintained.

THE *British Medical Journal* of May 6 contains an amusing article entitled "An Aristocratic Quack." The promises made in the manifesto of John Wilmot, Earl of Rochester—a quack of the time of Charles II.—are almost more tempting, if this be possible, than some of the advertisements which are so eagerly read, and so readily believed in, by a considerable portion of the community to-day. He undertakes (by the will of God) to "perfectly cure that tabes Britannica, or grand English disease, the scurvy; and that with such ease to my patient that he shall not be sensible of the least inconvenience, while I steal his distemper from him." He also seems to have held out hopes to the fair sex of beauty in the face of the most appalling disadvantages:—

"I will therefore give you such remedies, that, without destroying your complexion (as most of your paints and daubings do) shall render them perfectly fair; clearing and preserving them from all spots, freckles, heats, pimples, and marks of the small-pox, or any other accidental ones, so the face be not seamed or scarred. I will also cleanse and preserve your teeth white and sound as pearls, fastening them that are loose; your gums shall be kept entire, as red as coral; your lips of the same colour, and soft as you could wish for your lawful kisses. I will likewise administer that which shall cure the worst of breath provided the lungs be not totally perished and imposthumated; as also certain and infallible remedies for those whose breaths are yet untainted, so that nothing but either a very long sickness, or old age itself, shall ever be able to spoil them. I will besides, if it be desired, take away from their fatness who have overmuch, and add flesh to those that want it, without the least detriment to their constitutions."

Truly, "there is nothing new under the sun."

Miscellanea.

Benevolent Fund.

New Subscription.

Malone, C. A., 18, Lower Brook Street, Ipswich £1 1 0

A Way of Fixing Logan Crowns.

"There are many ways of mounting a Logan crown. This is one that suits me very well: Have the apex of root sealed firmly with hard gutta-percha or cement, ream the root and fit crown in the usual way, having the joint below the gum margin and leaving the rim of enamel intact. Roughen the pin slightly and sharpen it; after applying to root a solution of silver nitrate and drying, loosely fill the canal with soft-mixed amalgam, allowing a sufficient amount to fill all space; then press the crown home, using considerable steady force. The excess mercury will be forced out and the crown held securely, with a much better prospect of preserving the root than if cement were used in the same way."—From a paper in *Items of Interest*, by John W. Marsh, D.D.S., Warsaw, Ill.

Royal College of Surgeons of Edinburgh.

During the April examinations the following gentlemen passed the First Professional Examination for the Licence in Dental Surgery:—Henry Edward Bonnalie (Chester), with distinction; Henry Harling Capes (Manchester), with distinction; William Brown Black (Carluke), with distinction; Malcolm Warrack (Teswalt, Wigtownshire), with distinction; David Mackie (Newcastle); William Taylor (Carlisle); Alexander Hugh Lewis Campbell (Stranraer); Michael Joseph McDonnell (Limerick); John Shafto Common (Edinburgh); Thomas Mathison (Edinburgh); Alfred Jameson (Northumberland); Percy Montagu Scholefield (Liverpool), and Arthur Jones Penrhyn (Penrhyn); and the following gentlemen passed the final examination, and were admitted L.D.S.Edinburgh:—James Dalgleish Hamilton Jamieson (Edinburgh); Archibald McKendrick (Kirkcaldy); Carl Lotingu (Newcastle-on-Tyne); David Pollock (Bedford); Reginald George Willson (Sittingbourne, Kent); Walter Campbell Shearer (Liverpool); Alfred Marmion Beamish (South Africa); William Tweedie (Edinburgh); Charles Scott Brookhouse (Nottingham); Frederick Arthur Wilson (Sunderland); Robert James Bellman (London), and Alfred George Walby (Dublin).

The Teeth of Recruits.

The following paragraph from the *British Medical Journal* gives some very interesting details as to the rejection of recruits for the "services" on account of the deficiencies in their dental equipment.

"Colonel Dalbiac's question addressed to the Under-Secretary for War as to 'the number of recruits rejected during the past year on account of bad teeth, who were in every other respect fully up to the required standard,' and the answer that the number under the heading 'loss or decay of many teeth' was '1,767,' require some analysis to bring out the true statistical significance of the figures. The report of the Inspector-General of Recruiting for 1898 shows that 66,501 recruits for the regular forces were medically inspected, so that 1 in 38 (nearly) were rejected on account of bad teeth. The total number rejected was 23,287, which gives about 75 per 1,000 on account of bad teeth. The total rejections, however, are divided in the report into two classes: (1) various ailments; (2) want of physical development, the former including all those rejected for purely medical reasons, the latter for those under military standards. Those under standard numbered 9,318, and those rejected for various ailments, 13,696; the first should be set aside, because, coming under the early part of the examination, they would be summarily rejected without reference to teeth; of the second, the proportion rejected on account of teeth works out at about 127 per 1,000. But none of these figures really show the actual numbers with bad teeth, which are no doubt very considerably more, because in the examination of recruits the first point is standard measurements, which, if seriously defective, causes the summary rejection of the recruit without reference to teeth. As, however, the examination of teeth is usually about the last part of the medical inspection, those rejected for defective dentition may be held to be fairly fit in other respects. The question of teeth in recruits is a difficult one, but is fairly met by a recent revised regulation giving examining medical officers a wide discretion. It is really astonishing how many fine muscular men there are of the recruits' age with poor and defective teeth. On the other hand, numbers of weedy men have fair teeth. It is not so much a question of the total number of teeth lost or decayed, but whether (including the wisdom teeth probably in young recruits still unset) there are left sufficient opposing molars for effective mastication. Beyond that it is neither desirable nor practicable to lay down hard-and-fast rules."

Books and Publications Received.

THE HYGIENE OF THE MOUTH : A GUIDE TO THE PREVENTION AND CONTROL OF DENTAL DISEASES. By R. Denison Pedley, F.R.C.S., L.D.S.Eng., Dental Surgeon to the Evelina Hospital for Children, Southwark. *London:* J. P. Segg & Co., 289 and 291, Regent Street, London, W. ; *Philadelphia:* The S.S. White Dental Manufacturing Company, Chestnut Street.

METHODS OF FILLING TEETH : an exposition of practical methods which will enable the student and practitioner of dentistry successfully to prepare and fill all cavities in human teeth. By Rodrigues Ottolengui, M.D.S. Second Edition. With 273 illustrations. *Philadelphia :* The S.S. White Dental Manufacturing Company ; *London :* Claudius Ash & Sons, Ltd.

Yorkshire Evening Post, C. Ash & Sons' Quarterly Circular, British Dental Journal, Dental Register, Dental Review, Dental Practitioner and Advertiser, Dublin Journal of Medical Science, Guy's Hospital Gazette, Geo. Poulson's Bericht über Neuheiten und Praktische Erfindungen auf dem gebeite der Zahnheilkunde und Zahntechnik, Invention, Pharmaceutical Journal, Wiener Zahnärzliche Monatsschrift.

NOTE.—ANONYMOUS Letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 26, Wimpole Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

Subscriptions to the Benevolent Fund to the Treasurer, A. J. Woodhouse, Esq., 1, Hanover Square, W.

All contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 26, Wimpole Street, W.

Journal of the British Dental Association

No. 6. JUNE 15, 1899. VOL. XX.

Original Communications.

Valedictory Address.[1]

BY W. A. HUNT (YEOVIL).

GENTLEMEN,—On the onward—and may we not say upward?—march of the British Dental Association, each annual meeting forms a halting ground where we can pause and look back on the irrevocable past, survey the present, and, from the lessons of the past and vantage ground of the present, derive hope and courage for the future.

Peculiarly is this the province of a Valedictory Address, and, without interfering with the duties of your Hon. Secretary and Treasurer, I will, for a few moments, draw your attention to some points in the past year that have impressed themselves upon me.

The Annual Meeting being held at Whitsuntide at Bath seemed generally acceptable; the Sunday coming in the middle of our session was quite a new and pleasant feature. Socially, the meeting was a great success, if I may judge from the number of letters and congratulations I received even from some habitual grumblers.

The City Fathers of Bath, too, gave us such a kind and hospitable welcome as not only was most enjoyable to us, but which, in my opinion, carried a valuable object lesson to the general public of such a fashionable and exclusive city.

The Reports of your Hon. Secretary and Treasurer were certainly of an encouraging nature.

The Schools' Committee presented their seventh report, of much interest, but afterwards, at a meeting of the Representative Board, they tendered their resignation, which was accepted, and the best thanks of the Board were accorded to them for their services.

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[1] Delivered at the Annual General Meeting held at Ipswich, May 20, 1899.

Although not officially connected with the Association, a new society has been started with somewhat similar aims, with Mr. Sidney Spokes as President; many of the old workers have joined it, and they call themselves "The School Dentists' Society." An excellent Presidential Address was given in November last at the National Dental Hospital. Our Microscopical Section gave some good work, and some most interesting papers; F. J. Bennett, Hopewell Smith, A. Underwood, Storer Bennett, C. S. Tomes, Leon Williams, J. Turner, and others contributing valuable information.

With regard to the demonstrations, I think no one could have attended them without learning a good deal. The Dental Benevolent Committee gave an interesting account of their beneficent work.

Politically, distinct movement may be noted during the year. Those who have watched for years the General Medical Council will have noted, from time to time, the mistakes made in dealing with our profession from either—(1) ignorance of our special needs; or (2) prejudice; or (3) even an absurd jealousy, lest a too liberal medical and surgical education should make the dentist in some mysterious way a rival in the path of the medical man.

You will all remember a very early blunder—2,049 were admitted on the Dental Register, as in practice with pharmacy, before July 22, 1878. On examining the Chemists' and Druggists' Register it was found the names of one-fifth of the number of persons so registered were absent therefrom, and therefore could not legally have practised pharmacy, and were therefore improperly placed on the Dental Register.

To-day there are nearly 5,000 dentists on the Register. They have contributed, say, £9,000 to the General Medical Council funds, but, until last year were not even represented on that Council.

Gentlemen, the ignorance of our special wants on that Council has ever been apparent; and your Representative Board have long, long been working to get one of our profession on that Council who should be not merely a member, but a competent adviser.

In May last, as you know, those efforts were crowned with success, and I regard the appointment of Mr. Charles Tomes by the Privy Council as a *most* important political event for us.

Here is a teacher, an examiner, a practitioner in dental surgery, a man, therefore, of large experience in our needs and requirements, and as an M.A. of Oxford, an F.R.S., and F.R.C.S.Eng., &c., on an equality not with the lowest men on the Council, but with the very best and highest—a man not now harnessed to the cares and anxieties of practice, but able and willing to devote his time and talents to our welfare.

Moreover, chosen by the Privy Council, he has no electorate to threaten him, and, therefore, has a free hand. If good qualities be hereditary, and I have a strong suspicion that they are, we may remember his illustrious father, and congratulate ourselves, not, indeed, upon the quantity of our representatives, but upon what is still more powerful—and that is the quality.

Other political features I will call to your observation. Last month a circular was sent to us from the General Medical Council with advice (*a*) not to cover unregistered, unqualified men; (*b*) an intimation that the Medical Council will deal with medical men who may cover an unregistered dentist by helping him in operation, or by giving anæsthetics, or otherwise.

The Lord Chancellor himself has drafted a short Bill, which the House of Lords has ordered to be printed, to extend the same restrictions to companies as are at present in force against individuals—in brief, that no *company* shall carry on the profession of a physician, surgeon, dentist, or midwife, under a maximum penalty of £5 a day.

Consider, too, the draft of the "Medical Acts Amendment," one of the principles of which is that the law should forbid under penalties the practice of medicine for gain by any person not on the Medical Register. Should this become law a similar move might be made for the dental profession, as I shadowed out a year ago in my Presidential Address. Then it will be absolutely necessary to register—a diploma alone will be of no use.

Mark, too, how the two schools of dental surgery of London have approached the Commissioners for the recognition of dental surgery in their new scheme for the reconstruction of the London University, and so on.

As you know, I have never had much faith in simply repressive legislation, and have ever looked to internal education as the best and most healthy stimulus for increasing the growth and worth of our profession; yet I think you will agree with me that such things as I have lightly adumbrated all "make for righteousness."

At Bath, Mr. James Smith Turner read a paper on (1) Registration; (2) Membership of the British Dental Association; (3) Multiplication of branches. Well, your Representative Board thought so highly of this paper that, at Mr. Matheson's suggestion, seconded by myself, they had it printed, so that all hon. secretaries of branches and deans of dental schools should be supplied with a copy; and for myself, I wished every newly qualified student should have a copy placed in his hands, that he might have the benefit of such a pamphlet, every sentence of which is pregnant with wisdom and useful suggestion; indeed, I should, so to speak, include it in the canon of Holy Dental Scripture.

With regard to the suggested International Dental Congress at

Paris in 1900, my letter to Dr. Sauvez, Secrétaire Générale, Paris, has appeared in your JOURNAL, in March last, and the matter I leave with you to be dealt with.

This JOURNAL has now appeared, I am happy to say, in new and better form. As it has been in the past I should be inclined to say hard things of it, did I not know of the careful, loving, costly, but unpaid work liberally bestowed upon it in its younger days.

Let my closing remarks express, if they can, my gratitude for all the kind help and assistance I have received from my executive, and to none is my gratitude more due than to your able, conscientious, willing and courteous secretary, W. B. Paterson.

And now a moment as to why we are assembling at Ipswich to-day. You may remember at Bath at our Annual Meeting, we selected, at the invitation of the Eastern Counties Branch, Norwich, and we accepted Mr. White, of their nomination, as our future President. Unfortunately Mr. White's health was not equal to the duty, and he had to say no. We did not feel exactly that we could go to Norwich with our chief man *hors de combat*, and therefore we suggested Ipswich. Of course the Association could not be consulted upon this point, and therefore your Representative Board did the best they could. We asked your excellent resident man here, Mr. Fenn Cole, to become our President. He has done all the preliminary work with the greatest care that the President would be expected to do, but he has refused the Presidency. He was a too modest man, I am told, but I do not know whether that be true or not. At any rate, he gave us an inflexible no, and then we had to look about for another President. After a little search we found one, but we had to go to London—we get everything in London, as you know. And I now leave this chair to my successor, Mr. J. Mummery—and here is a seeming paradox; his renown is certainly *microscopic*, and yet he is so well known and appreciated by you all as to need no introduction from me.

Mr. Mummery, I am happy and proud to present you to the British Dental Association as their new president—and, sir, you may take it from me, that the Association are proud to receive you.

TO PRESERVE RUBBER GOODS.—A cycling paper states that the occasional soaking of rubber articles in a 3 per cent. solution of carbolic acid will prevent the rubber from becoming rotten. It might be worth trying this suggestion on rubber sprays, &c., things which we may not often use, and the rubber of which, in the meantime, frequently perishes.—*Australian Journal of Dentistry.*

Presidential Address.[1]

By J. H. MUMMERY, M.R.C.S., L.D.S.

Ladies and Gentlemen,—In accepting the honourable position which you have thought fit to bestow upon me, and occupying this chair to-day as your President, I cannot but feel that I must view myself rather in the light of a usurper. We deplore the unfortunate circumstances which led to my being in this position, and sincerely hope that Mr. Wentworth White, who should have been your President, will soon be restored to full health and strength.

Mr. White's retirement being unavoidable, we had much hoped that Mr. Fenn Cole would have consented to take the chair. His long and eminent standing in Ipswich, and his evident qualities to occupy the position, appeared to us to point to him as the one man who should take it, but he has been unable to see his way to do so, and I am now in the position of asking you to allow me, a stranger to the neighbourhood and an interloper, to welcome you to the ancient town of Ipswich, and in the name of the Eastern Counties Branch to offer you a most cordial and hearty welcome. I will endeavour to do the honours of the position to the best of my ability, my failings being compensated for, as I know they will be, by the members of the branch whose guests you are, and whose careful and kindly plans for your accommodation and entertainment, will, I am certain, ensure a most successful and enjoyable meeting.

In an inaugural address perhaps I may be forgiven if I make it in part somewhat of a general nature, as those who follow me will deal with special subjects.

We have nearly reached the end of the great nineteenth century, a period in which a greater advance in knowledge has taken place than in any century preceding it, and as a traveller ascending a mountain pauses now and then to take breath and look back upon the country he has traversed, so it may be well if at this, the last Annual Meeting of the Association to be held in this century, we look back and see what advances we have made in our profession, and in what directions the great steps in general scientific knowledge have been taken.

I think if we take a survey of our own profession we shall see a little advance from the days of the barber surgeon and the blacksmith. Even in the first part of this century the barbarous key was the only instrument used for extraction, and its employment the chief dental operation performed, a few splinters of broken bone, and a sound tooth or two thrown in, making the operation often a very thorough and radical one.

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[1] Delivered at the Annual General Meeting held at Ipswich, May 20, 1899.

In an old book in my possession entitled "A Discourse on the Whole Art of Surgery," by Peter Lowe (Scottishman) published in 1612, there are some very quaint and interesting pieces of advice on the teeth. Even in those days our author was enlightened enough to condemn their indiscriminate extraction. He says:—"Some have beene of opinion that there are wormes which do engender in the teeth, and cause great paine, perswading the common people to the same: by which opinion the common Barbor Chyrurgions doe commit great errour in plucking out of innumerable teeth which might well serve. There are no wormes that procure this dolour, but onely corrosion of the nerve by the acrimonie of the humor, as may be perceived after the tooth is plucked out, and broken." In another place, speaking of extraction, he says:—"and if so be, the best way is to plucke out the tooth, like as many now doe but unskilfully and ignorantly, for every small dolour or greefe, ever perswading and assuming that to bee the most sure and soveraigne remedie, and oftentimes which is worst, they plucke out one or two of the whole teeth and leaveth the corrupt, as I have sometime seen by the unskilfull handling of that instrument which is made with three branches called the Polican."

"One of his chapters is entitled "To help the mouldy, blacke, hollow, or evil-favoured tooth." Quaint as his remarks are, they are mixed up with a good deal of wisdom, although the polican may have been the chief dental instrument, and the ascent and descent of humours made to account for most diseases.

The introduction of the forceps by Sir John (then Mr.) Tomes was the first great advance made in dental surgery on scientific principles. While house-surgeon at Middlesex Hospital the idea occurred to him to have forceps made, adapted to the kind of tooth they were intended to extract, and these were fully described in a paper published by him in the *Medical Gazette* for June 4, 1841. This was rapidly followed by further advances in conservative dental surgery; the wholesale extraction of diseased teeth was deprecated, and the methods of filling rapidly improved upon; the introduction of cohesive gold foil, the rubber dam and the dental engine, which we owe to our brethren across the Atlantic, being important landmarks in our progress. The modern knowledge of antiseptics and the means of employing them in the mouth have been of great value in the treatment of abscess and abscessed roots.

In the more strictly scientific department of our work the names of Sir John Tomes and Mr. James Salter, both so recently passed from among us, are especially conspicuous. The former's important researches on the histology of enamel, dentine, and cementum, so ably accompanied and followed by those of his son, Mr. Charles Tomes, and the excellent observations and deductions of Mr. Salter, have done much to establish the scientific reputation of our profession in England; while on the Continent the important work of Kölliker, von Ebner, Baume, Röse, and many others, has helped to elucidate the very difficult problems connected with dental histology.

During the last twenty years the wild and uncertain theories regarding the pathology of caries have yielded to an accurate knowledge of this most interesting disease.

To Messrs. Leber and Rottenstein is due the credit of the first researches which hinted at the real pathology of caries. Messrs. Underwood and Milles, prompted by the great advances in general bacteriological science, contributed still further to this knowledge, proving that germs were always found in the diseased tissues and that without the presence of germs caries never took place.

Following this was the really colossal work of Professor Miller, of Berlin, work which it is difficult to believe could have been carried through, as it was, by a single man. His devotion to this work was continued night and day for years, with the result that he has established on an absolutely firm basis the true pathology of dental caries. Every point in this investigation was carefully verified by a series of the most ingenious experiments, and nothing taken for granted. He showed that caries was caused by the presence of germs in the mouth, which set up a fermentative action with the carbohydrates contained in the food, leading to the formation of lactic acid and the solution of the lime salts and ultimate breaking up of the tissues of the tooth. As we all know, Professor Miller's devotion to his work led to a serious breakdown in health, which we are happy to know he is steadily recovering from.

The greatest boon conferred on suffering humanity in any century may be said to be that of anæsthesia. We are proud to remember that the introduction of this great blessing is due to two members of our profession in America, Morton and Wells, for, although Sir Humphrey Davy had noticed the anæsthetic effect of nitrous oxide, it was not then followed up, and it was left to Wells, in 1844, to make the observation afresh and apply it to practice. Morton shortly after this, discovered the anæsthetic effect of ether, which rapidly came into use in general surgery—Sir James Simpson, in Edinburgh, soon afterwards introducing chloroform.

We are so used to seeing anæsthetics administered that we quite fail to appreciate what a world without anæsthesia must have been, and that in times when there was less regard shown to human life and suffering than there is now, when, apart from operations for the various surgical diseases, acts of violence were so common that the crude surgery of the day was continually being called into requisition. It is hard to appreciate what must have been the feelings of a sensitive patient in those days who had to face the prospect of a severe operation—it was no uncommon thing for a patient to die at the very commencement of the operation from syncope due to dread and shock. A great operation was a severe trial to the conscientious surgeon and to the student—although the familiarity with such terrible suffering hardened and brutalised many of the surgeons and nurses.

In the life of Sir James Simpson it is mentioned that Cheselden, the great anatomist and surgeon to St. Thomas' Hospital, abhorred the pain which he caused and longed for some means for its prevention. "No one," said Cheselden, "ever endured more anxiety and sickness before an operation." It is curious to think that the introduction of anæsthetics was opposed on religious and moral grounds by the "anti-humanity" people of that day—some actually holding, or professing to hold the opinion that suffering was ordained by God and it was impious to so alleviate it. This spirit, I fear, still exists among us, though hardly in so crude a form, and still at the end of the nineteenth century organised opposition is opposed to the acquisition of knowledge of the greatest benefit to humanity.

In the political and social aspects of our profession we can point to great advances in the last half century—the establishment of the Dental Diploma—the founding of the Odontological Society, and the passing of the Dentists Act.

The establishment of the British Dental Association is a most important landmark in our history. Of the advantages it confers upon us, both social and professional, I need not here speak, as at our last Annual Meeting a paper was read by one of those most active in its establishment—now our esteemed Vice-president—and so ably was its claims set forth in that paper that the Representative Board decided to publish it in a separate form and distribute it to the members. I sincerely hope it may be the means of inducing many of those who still stand outside to join our ranks.

Last year was marked by a very important appointment, the necessity for which had been long recognised by the profession; that of a Dental Representative on the Medical Council.

The question of attention to the teeth of school children has been very much under consideration for some years past, and by the formation of the School Children's Society will no doubt be very much furthered, and the important questions which it involves be judiciously and impartially dealt with.

Our dental schools in the metropolis are applying for recognition in the new teaching University for London; whatever this may bring to us, we feel that while the recognition of dentistry is desirable, in common with other specialities of medicine, the establishment of another diploma may not be an unmixed blessing. All diplomas or degrees, whether in medicine, science, or art, are open to all, and the establishment of another will only tend to mystify the public who are learning to appreciate the value of the L.D.S., and will bring about in a small degree the condition already so deplorable in medicine, of the multiplicity of diplomas. I am one of those who are of opinion that our own branch should not be different from any other special branch of medicine, but rank with those special branches, and I hope the day may not be far distant when it shall be the ambition of every dentist to obtain a diploma in surgery in addition to the L.D.S.

We hope that before the year is over, the amendment to the Companies Act, making it illegal for companies to practise for gain, will have become law.

Let us hope that the progress of our profession will be as rapid in the future as it has been in the near past, that the day of the advertiser and the quack, in all his protean forms, will soon be over, that he will become simply a palæontological study, and in his different forms and varieties duly classified and arranged upon our museum shelves.

The nineteenth may appropriately be called the century of great generalisations, those firm foundations in the rock on which the superstructure of knowledge must be built. The establishment of these general laws must precede all great advances in the understanding of the why and wherefore of the mysteries by which, even in these materialistic days, we are still surrounded.

Nature, in her processes and methods, had in former times been looked upon with superstitious awe, and even to comparatively recent times those who had dared to try and wrest her secrets from her by modern methods of research have been treated as moral delinquents, and I am afraid we cannot say that this spirit of opposition to the beneficial acquisition of knowledge is quite dead among us yet.

Not so very long ago very strong words were used for those who dared to neglect the one voice of authority in matters of knowledge, and had blasphemously tried to find out Nature's ways for themselves. But in scientific matters the voice of authority, unless proved by those very methods to be correct, cannot be heard—we are trying to fathom the secrets of a great power—where the authority of man is as nothing.

"Nature, an infinite unfeeling power
From some great centre moving evermore
Keepeth no festal day when man is born
And hath no tears for his mortality."

It may be interesting to briefly state the most important generalisations in science of the nineteenth century.

As early as 1804 Dalton developed the atomic theory, stating that

"ALL CHEMICAL COMBINATIONS TAKE PLACE BETWEEN THE ULTIMATE PARTICLES OR ATOMS OF BODIES, AND THESE UNITE EITHER ATOM WITH ATOM OR IN PROPORTIONS EXPRESSED BY SOME SIMPLE MULTIPLE OF THE NUMBERS OF ATOMS."

Whatever modifications of this primary statement by Dalton have taken place since, the atomic theory proved the foundation of modern chemistry, and the immense advances in this important science since the days of dephlogisticated air and the search for the philosopher's stone have been due to the fact that they have been built up upon the foundation of this great generalisation.

The doctrine of THE CONSERVATION OF ENERGY is another of the great generalisations of the period and can be stated as follows :—

"THE TOTAL ENERGY OF ANY BODY OR SYSTEM OF BODIES IS A QUANTITY WHICH CAN NEITHER BE INCREASED NOR DIMINISHED BY ANY MUTUAL ACTION OF THOSE BODIES, THOUGH IT MAY BE TRANSFORMED INTO ANY ONE OF THE FORMS OF WHICH ENERGY IS SUSCEPTIBLE."

This great generalisation, so well illustrated in the mechanical equivalent of heat, has done for physics, in this century of the introduction of the steam engine, what the theory of evolution has done for biology—it has been another of those great crystallisations of thought which have helped to place the phenomena of Nature in relation to human reason in orderly array.

Another great generalisation of the time is the UNDULATORY THEORY OF LIGHT. This grand conception supposes an imponderable, invisible something, the so-called ether—the actual existence of which it is impossible to prove by ordinary methods. It is this invisible ether through which are driven the impulses or waves, which are translated to our senses as heat, light, colour, electricity. One might say—a wild flight of imagination—not a scientific fact, but when it is seen that phenomena hitherto unexplained or very imperfectly explained, fall into order and take their places in the most perfect manner when viewed from this standpoint, we feel we are again face to face with one of the great generalisations of our time.

As one writer says, speaking of this ether :—

"No eye has seen it; no instrument can weigh it; no vessel can contain it; nothing can measure it; yet it must be there. Absolutely invisible, yet it is the sole key to all physical phenomena."

In 1838 Schlieden and Schwann enunciated the great theory of the cell.

"THAT THERE IS ONE UNIVERSAL PRINCIPLE OF DEVELOPMENT FOR THE ELEMENTARY PARTS OF ORGANISMS, HOWEVER DIFFERENT, AND THAT THIS PRINCIPLE IS THE FORMATION OF CELLS."

This important theory, as Dr. Wilson says in his interesting treatise "On the Cell in Development and Inheritance," first brought the structure of animals and plants under one point of view by revealing their common plan of organisation. He says: "No other biological generalisation, save only the theory of organic evolution, has brought so many apparently diverse phenomena under a common point of view, or has accomplished more for the unification of knowledge. The cell theory must therefore be placed beside the evolution theory as one of the foundation stones of modern biology."

It led to improved methods of histological research. "It inaugurated a new era in the history of physiology and pathology by showing that all the various functions of the body in health and disease are but the outward expression of cell activities." It explained the fertilisation of the egg, and threw a new light on the understanding of heredity and the mode in which physical peculiarities and character are transmitted from generation to generation.

From the lowest animal and plant forms, consisting of one single cell, we trace through all the varied forms of vegetable and animal life the same method of growth and multiplication, the division of the cell. Virchow, following Schwann, showed that his doctrine of *free* cell formation was untenable, and that every cell was formed from a preexisting cell—*omnis cellula e cellula*, and his great work on "Cellular Pathology," apart from all his immense contributions to science, would have been sufficient to have made his name famous for all time.

Weismann, in late years, studied the cell from the point of view of heredity, showing that while the somatic or body cell perished, the germ cell was carried on from one generation to another; the individual dies but the race is carried on—the germ cell is immortal.

No account of the great generalisations of the century will be complete without that of the great landmark in the history of surgery, the introduction of the antiseptic method by Lord Lister. I may perhaps state the generalisation on which this great work was grounded as follows:—

THE CAUSE OF SUPPURATION IS THE PRESENCE OF GERMS, AND THE FAVOURABLE HEALING OF WOUNDS IS PROCURED BY THE EXCLUSION OR DESTRUCTION OF THESE GERMS.

Led by the researches and teachings of Schwann and of the great Louis Pasteur, of whom he has always expressed himself a warm disciple, Lister was inspired by the great idea that took its practical form in antiseptic surgery.

In the great experiment at the Glasgow Infirmary where, treating patients under the most disadvantageous of circumstances, and, as it afterwards proved, with the most singularly unsanitary surroundings, this great surgeon triumphantly proved that the antiseptic treatment converted his wards "from some of the most unhealthy in the kingdom, to models of healthiness." According to his own description, "A few inches below the ground behind the lowest male accident wards, with only the basement area, 4 ft. wide, intervening, was found the uppermost tier of a multitude of coffins which had been placed there at the time of the cholera epidemic in 1849, the corpses having undergone so little change in the interval (eighteen years) that the clothes they had on at the time of their hurried burial were plainly distinguishable." In the neighbouring ward the mortality became so high that it had to be closed. In Professor Lister's ward, "during the nine months the antiseptic treatment had been fairly in operation, not a single case of pyæmia, erysipelas, or hospital gangrene had occurred."

Many of us here remember that in our student days such diseases were very common, and when we think of the long and painful dressings of a suppurating stump, with its attendant dangers of secondary hæmorrhage and pyæmia, we know what an immense debt of gratitude the world owes to antiseptic surgery and its discoverer. Those of us who were fortunate enough to watch the first introduction of the treatment were astonished to see a patient, after an important amputation, showing scarcely any rise of temperature, and almost entirely free from pain, and to see a compound fracture that had often taken a year to heal, and frequently terminated atally, healed like a simple fracture in a few weeks.

What a change from the days of that great surgeon and great reformer in surgery, Ambrose Paré, who was filled with sympathy for his patients, and strove, according to the lights of his day, to alleviate their sufferings. After a capital operation in his day, performed of course without an anæsthetic, he applied the actual cautery to the wound, either by means of boiling oil or a hot iron—and then used a soothing (!) application composed of a mixture of sulphate of copper, vinegar, and oil of turpentine. Such was the lot of poor humanity in the "good old times."

We are proud to know that our country has bestowed the highest honours at its disposal on this great benefactor of the race, and that Lord Lister, as President of the Royal Society, still takes an active part among us as a leader in scientific thought.

The last great generalisation we have to consider is the foundation stone of biology—the doctrine of evolution as stated by Darwin—*that* SPECIES HAVE ORIGINATED BY MEANS OF NATURAL SELECTION OR THE PRESERVATION OF THE FAVOURED RACES IN THE STRUGGLE FOR LIFE.

Before the time of Darwin the doctrine of the "fixity of species" had been firmly held. Each species of animals and plants was supposed to have been specially created—now the doctrine of the special creation of species may be looked upon as completely abandoned, and that of evolution has taken its place. It does not often fall to the lot of one man to effect such an enormous revolution in thought as was effected by Darwin in the short space of twenty years.

As his great co-worker, Alfred Russel Wallace, says: "We claim for Darwin that he is the Newton of Natural History, and that, just so surely as that the discovery and demonstration by Newton of the Law of Gravitation established order in place of chaos and laid a sure foundation for all future study of the starry heavens, so surely has Darwin, by his discovery of the law of natural selection, and his demonstration of the great principle of the preservation of useful variations in the struggle for life, not only thrown a flood of light on the process of development of the whole organic world, but also established a firm foundation for all future study of Nature."

Written at a time when the palæontological record was most imperfect, and the missing links were very numerous, it foreshadowed the discovery of those very links that are now making the chain of evidence for evolution stronger year by year.

We can many of us remember the bitter controversies that arose around it, the religious world looked upon it as subversive of the Scriptures, and the orthodox could not find any terms too harsh for the new apostle of evolution. Many looked upon Charles Darwin as a kind of monster in human form, and were astounded when they found him one of the most mild and amiable of men, always ready to listen to the opinions of others and distrustful of his own, his one and only desire being to discover the truth, and nothing but the truth. As his great champion, Professor Huxley, said: "Philosophers, on the other hand, have no such aggressive tendencies. With eyes fixed on the noble goal to which *per aspera et ardua* they tend, they may, now and then, be stirred to momentary wrath by the unnecessary obstacles with which the ignorant or the malicious encumber, if they cannot bar, the difficult path; but why should their souls be deeply vexed? The majesty of fact is on their side, and the elemental forces of Nature are working for them. Not a star comes to the meridian at its calculated time but testifies to the justice of their methods." Their beliefs are "one with the falling rain and with the growing corn."

While some of these great generalisations have undergone, and will undergo, certain modifications, they have been invaluable as the scaffolding on which the knowledge of the century has been built, and the fundamental truths contained in them have been proved by the orderly way in which phenomena hitherto unexplained have fallen into place, and been proved to accommodate themselves to these general laws.

We have lived in great times, and there are greater times before us. Disease and suffering can never be eradicated from the world while it is constituted as it is, but seeing what we have seen in the past, we can feel confident that these dread evils will be as greatly alleviated in the next century as they have been in this one by the great discoveries of anæsthesia and antiseptic surgery. We have paused, then, with our hypothetical traveller, to look back upon the times immediately behind us, and to take a brief but wide view of the country that extends below; but he has not yet reached the mountain top, and we must be ready to take up our journey with him again, ready

> "To follow knowledge like a sinking star,
> Beyond the utmost bounds of human thought."

Training in Mechanical Dentistry.[1]

BY J. SMITH-TURNER, M.R.C.S., L.D.S.Eng.

WHAT has been present to my mind for some time is the methods that have been brought before us of teaching apprentices. Now that apprenticeships are short, time is more valuable, and, having passed through a variety of apprenticeships since I joined the profession, I have had some little experience of what is done and what is not done, and what is suffered. I joined the profession in the "bone" period, and the first thing we had to do was to learn to fit down "bone" blocks, that is to say, we got a piece of walrus tusk, which was softer than hippopotamus, and we had to fit it down to a model and turn out something of this shape [exhibiting an upper denture in its first stage]. The thumb used to suffer terribly. I have a vivid recollection of the pain I endured in my right thumb when I made it a fulcrum for working a scalpel or scooper upon, also the blister which rose up on the palm of my hand; and the pain I suffered in my left hand, and sometimes the rasping of a file on my thumb in learning to use the pin, which to us is our third hand, was not the least painful. In working at a pin the dentist is really learning to use a third, though stationary, hand.

The apprentices I have had under my care have been apprentices who have been reared to the bench, and consequently have desired to make the most of their time, because it is better for them when they can be forwarded in the learning of their business. The first thing I do is to teach them to fit down a block. I do not teach them to make any impossible dentures—dentures that could never be worn, but made to be looked at. They have to fit down a number of blocks, and I teach them to use the scalpel or scooper, and also the value of cutting inwards. If you cut outward with an excavator you cut away the edge of your cavity; and so it is in fitting down a block. They have to learn to cut inwards, and then they learn to use the circular cutter on the lathe when they are cutting out the palate; so that in the very first stage, in his initiatory stage, the student is learning to use his hands in the way of cutting, and to use his third hand by working against the pin. I use box-wood for the purpose because it is softer than "bone," and so the hands are not blistered or hurt in the early use of the tools. I give them a good block and they have to use the bow-saw to cut it up and to make it into a workable condition.

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[1] Delivered at the Annual General Meeting held at Ipswich, May, 1899.

In all this process the student is learning what you hear technical teachers talking about—carpentering, and how to use tools. The student is learning it all the time, but he is learning to use the tools he has to earn his bread with, and not tools to be thrown aside later on. I like a pupil to have all the mechanical knowledge he can acquire while in the act of learning dental mechanics, and not be put on dentistry after he has spent his time making little boxes; indeed, I think that doing rigid or square work of any kind unfits him for mechanical dentistry.

Another object I have in view in this method is that the pupil's eye is always upon the model. It may be a model with teeth upon it, or it may be an edentulous model, but it is always a model of some kind, and that is what he has to work upon for the rest of his life, and that is what he ought to be familiar with before he is familiar with anything else. He will only acquire familiarity with it by its constant presence before him, and in all this learning of mechanical manipulation he ought to have the model to work upon.

Then comes the question of embossing and chasing. There, again, I use the materials I am daily requiring in the work-room for teaching. The first thing the apprentice has to do is to block up for me zinc trays and stamp them out—I use zinc because plaster adheres better to zinc than to any other metal—and they use the punch and mallet and the small hammer and make roughened surfaces on the tray. They are then learning the use of the vice and the use of punches, and, rudely, how to block up gold plates in the shape of these zinc trays, and what is very important, they learn to use the big shears. Where there are teeth to be provided they have to make enlargements for them—in other words, they have to make a tray that is useful, and do it with a mallet, punch, hammer and anvil, and incidentally learn to use the soldering bolt. They are learning their mechanical work, and they are also becoming more and more familiar with the peculiarities of models. The only thing I call attention to in these trays is that where provision is made for teeth I fill any spaces which may have been made by cutting, instead of soldering up, with a little wax to keep the plaster in; so when the tray is removed you get a little yielding and the plaster breaks readily away from the teeth, which it will not do if you have the tray made entire.

That is the way I work the pupil into learning punching, the use of the mallet and stamping up, and the use of models and the vice.

Then he gets a bit further on. I vulcanise rudely some blocks, and give them to him to file up, and I put a set of teeth before him which he carves, using again the instruments which he will have to work with, and becoming more and more familiar with the shape of the teeth. You hear a great deal about the want of artistic perception, but you will not have much want of artistic perception in a man who is kept for a time carving teeth on such blocks. You may make them of any material or colour you like. That is the way he ought to be taught, I think—unconsciously if possible. Then I advance a little further, and I have a particular strengthener which I use, and the pupil is taught to stamp up these strengtheners, to roughen their surface, and to chase the metal round the chamber; and that introduces him to the chasing' work that is required in working up gold plates.

That is all I have to say, but I should like to show you this strengthener, which I have found very useful. I showed it at a Branch meeting some time ago, but I was so thoroughly sat upon that I put it in my pocket. This is a strengthening plate as it appears after it is finished, and, as a lady said to me once, "It is a very nice plate for putting your name upon," but it gives a rigidity which I have not found in any other, and still preserves the unequalled fit of the vulcanite.

Work and Play.[1]

By W. J. PIDGEON, L.D.S.Eng.

Mr. President and Gentlemen,—The title of the paper I propose to read to you this evening will no doubt have struck you as being particularly abstract and general in character, and as having no special bearing on the vocation in which we, as dentists, are engaged. An address on this theme, you may have thought, might equally well be given before a philosophical or scientific society, a gathering of painters, authors or musicians, at a socialist club or any other assembly anxious for information, amusement or self-improvement, and desirous of ascertaining if anything new could possibly be said of anything under the sun. At any rate, friends, that was the notion which found itself uppermost in my mind on sitting down one evening to commence it with a pencil in my hand and a blank sheet of paper before me. Yet, though the subject is not one of a technical nature, or bearing entirely on our own calling, we may, I think, derive some advantage from an occasional departure from the strictly dental and technical in order to regard our life from that broader aspect which belongs to it when considered from the ethical or social point of view.

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[1] Read before the Midland Counties Branch at Blackpool, Feb. 25, 1899.

To commence with, I suppose there is one opinion in which we shall all agree, namely, that work is necessary for our health of body and mind. We have long ago discovered that there is no harder work in the world than doing nothing. Some occupation we must have, and that a useful one, if we would be really happy. It is indeed one of the most essential conditions of happiness. "You may depend upon it," wrote Sir Walter Scott to his son, "that there is nothing to be had without labour, from the sports by which a rich man gets rid of his *ennui* to that by which a poor man gets his daily bread. The only difference is that the rich man must labour to get an appetite for his dinner and the poor man to get a dinner for his appetite."

Quite apart from the fact that labour of some sort is necessary to most men in order that they may live, it is, even to those of ample means, the great liberator from that state of mind which attends an idle and aimless life, a consciousness of being of no value in the world, of performing no useful part in it, of giving back nothing in return for the good things we enjoy, of living a sort of parasite life on the fruits of others' toil. To be under no obligation to work may to some appear like true liberty, yet, though liberty is in one way increased by fetters of one sort being thrown off, others of a far more galling kind are ready at hand to take their place.

This fact has been brought home to many who, after a busy and strenuous life, have found themselves possessed of the means of retiring. It often happens that in such cases a man's attention has been so concentrated on what is called "getting on," or the too exclusive attention to the details of one special occupation, that those mental faculties on the development of which the power to enjoy leisure depends have fallen into such neglect, that when at last the much-longed-for time of leisure arrives, the poor fellow finds himself a man of fortune, and at the same time an intellectual pauper. For the first time in his life, perhaps, he realises what a helpless creature he is when set entirely free from the steadying shafts and the life-long rut in which he has been running.

Such a one was a certain worthy grocer who some years since sold his business, and bought a house in the country in order to enjoy himself. By and by he found that his enjoyment had become so intense that it was altogether too much for him, so, like a wise man, he resolved to put it aside before it killed him. Under such circumstances we need not wonder that the happiest day he had known for a long while was the one on which he bought back his old shop for a much larger sum than he had received for it, and re-started in business. Yet the thought of retiring from active professional life, or of possessing at least the power to do so is, I suppose, a sort of consolatory view of the future to some extent cherished by all of us. This, however, is probably only partly due to a desire for ease in our latter years. At the back of it also lies the wish to be free to retire if we should so desire, or to change the sphere of our activities; to be lifted above the servitude of the necessity to work for the sake of a living into the freedom of one who need not fear that by any untoward stroke of fortune, illness, or the natural infirmity of age, he and his family might be reduced to poverty and dependence on the bounty of others.

Troubles of various kinds take a far lighter hold on a busy man than on an idle one. It appears that on a certain occasion Dr. Johnson wrote a letter to Mr. Thrale on the death of his son. Boswell said that it would be very distressing to *Mrs.* Thrale, but that she would soon forget it, as she had so many things to think of. "No, sir," replied Johnson, "Thrale will forget it first. *She* has many things she *may* think of; he many things which he *must* think of." "This," says Boswell, "was a just remark on the different effects of those light pursuits which occupy a vacant and easy mind, and those serious engagements which arrest attention and keep us from brooding over grief." Yes, the careless ease of the lotus eaters is pleasant enough as a poetical conception, and not by any means without attraction for us in those moods of weariness and languor to which hard workers and thinkers are occasionally subject. Yet even while we dwell in fancy on the pleasantness of the picture, we are conscious that it is no better than a delusion. As a rule, after a little rest we pull ourselves together to face once more our daily tasks and cares. But in case this morbid tone of thought should often assail a busy man, or occur with increasing frequency, he should regard it as a red flag on the line, a danger signal which he cannot safely ignore. It is a significant sign of flagging energies, of depressed nerve power and over-strain, a condition which imperatively demands relief under threat of disaster and breakdown. So we find that work, which is the very salt of life when taken with due regard to our strength and capacity, may in excess become in its effects a deadly poison.

We all remember the pathetic example of Sir Walter Scott and the sad break-up of his faculties in his old age, under his manful efforts to recover his financial position and pay off the crushing load of his debts, after the failure of his publishers. In his case the motive which spurred him on was a noble one, but he had over-estimated his strength and fell a victim to his mistake. There came a day at last when the great Wizard of the North was compelled to drop that magic pen which for so many years had charmed the world, and leave his heroic task unfinished.

We may also recall the case of Hugh Miller, the stonemason and geologist. Excess of mental toil, pursued during the hours of his leisure from daily work, so affected his brain and undermined his hope that he yielded to the temptation to destroy himself. It seems probable, too, that the death of Brunel the younger from paralysis was due in part to the strain of overwork in early life.

But examples of unwise devotion to work are only too numerous, and we may presume that the trouble is not by any means a modern one. However good the purpose may be by which we are impelled to neglect to take rest and recreation, the result is none the less disastrous. Work, play and rest, in fair and due proportion, should be the normal method of our living.

The measure of the recreation and rest relative to work required by any one of us can only be arrived at by personal experience, as it must necessarily depend very much on health and temperament, as well as on the special nature of our employment. It is, I think, pretty well accepted amongst us that the majority of employments will permit of men pursuing them for a greater number of hours per day than would be wise to give to dentistry. For most of us a steady application to operating work for six or seven hours daily is probably the most that would be consistent with health and efficiency. Some few, no doubt, can stand more; but I should expect to find them quite the exceptions. More may be done at times of special need, but to keep this up year after year, with about three weeks or a month of annual holiday, appears to be quite enough professional work for most of us. I say professional advisedly, for our work is not necessarily ended with the exit of our last patient. Public duties of one sort or another, involving more or less thought and effort, will be sure to claim a portion of that residuum of evening time which yet remains. It might be wise for some among us to break away at intervals more completely from the ruts of routine, if only the tyranny of circumstances would permit, after the manner of a certain New York physician, who was accustomed to leave his practice every seventh year for a long run through Europe, justifying himself by the plea that so many of his fellow-practitioners had broken down for want of the same line of treatment.

On the importance of sleep it is hardly necessary to dwell. It is the most powerful of restoratives, and, like appetite, can only be enjoyed with a true zest by those who have laboured sufficiently to earn it. To most of us who enjoy a fair measure of health, and to whom the word insomnia expresses no personal experience, the sweetness of sleep cannot fully be realised. But talk to the commander of one of our great Atlantic liners on the subject, at the close of some stormy and perilous voyage, during which he may have kept unremitting watch on the bridge for a couple of days and nights at a stretch, and he will hardly think too much could be said in praise of it. It always seems to be precisely that thing which we want but have not, or have not long possessed, which appears to be the most precious. It has been told of sailors that when, on reaching shore after long and trying voyages, they could enjoy the luxury of a long night's sleep, they have been known to give directions that they should be wakened at the hour of the first watch, so that they might have the exquisite pleasure of realising that the night was entirely their own, and of saying, "What do I care for the first watch?" as they turned to sleep once more.

During the time of sleep the brain receives, as we know, a diminished supply of blood, so that it is well to avoid anything productive of mental tension at the close of the evening. For this reason it is inadvisable to employ the brain at that time upon any work or play productive of a high state of excitement. A quiet book or chat for the last hour of the day gradually prepares the mind for sleep, whereas scientific study, a mathematical problem, or even a game of chess, would have the reverse effect. There seems to be good reason to believe, too, that sleep taken before midnight is specially restorative. This belief is apparently a widespread one, since it has crystallised itself into the proverb that "An hour's sleep before midnight is worth two after." One advantage we undoubtedly secure by retiring fairly early, viz., that the time per day is shortened during which we breathe the vitiated air of our ill-ventilated, gas-lighted rooms, and we are able to rise proportionately early to work or study during the first fresh hours of the morning.

I remember reading some years since what purported to be a physiological explanation of this sufficiently attested fact, that an hour's sleep before midnight is worth two after.

The writer held the opinion that a certain rise in the temperature of the blood takes place towards the close of the day, which he termed the evening fever. This, he said, is accompanied by a condition of mental excitement and an increased activity of the brain and nervous system. It is at this time of the day that those possessed of artistic talent of any kind find themselves most completely in possession of their powers and best able to create, perform, or interpret, according to the bent of their particular genius. This increase of energy, it was contended, may be employed in activities of various kinds, physical, intellectual, æsthetic, &c. In being so employed a certain latent force in the system is gradually used up. If not carried beyond a certain point this process is quite consistent with health, and even conducive to it, as providing such work for the natural faculties as is needful for their strength and development. But this evening fever reaches a climax at midnight, after which hour it rapidly declines, a comparatively weak secondary climax following three hours later.

If, then, we work or play till midnight or later, and nearly all our latent force is exhausted in those activities, which are accompanied by a rapid breaking-down of the various tissues of the body, not only will there be a greater amount of tissue repair to be done during sleep, but a diminished and in many cases an inadequate store of energy will remain wherewith to do it.

This theory seems to me to have something reasonable about it, and to square fairly well with our physiological knowledge. Supposing it, then, to be no mere ingenious fiction, but a rational statement of facts, it would afford a scientific support to the good old proverb that "Early to bed and early to rise, makes a man healthy, wealthy, and wise."

There are many kinds of recreation open to our choice, the chief difficulty in the selection being that many of us find that we have no sufficiently strong and definite inclination to any particular one, as may lead us to take it up and steadily pursue it. In short, the power is not given to us all to become so fond of any one study or recreation that it shall afford us constant pleasure in our leisure hours and become worthy of the name of a genuine hobby. This power of enthusiastically directing our energies into one or two channels is comparatively rare. Most of us, I think, are apt to find either that we are rather listlessly indifferent to all special forms of amusement, or that we are so inclined to change that we are fain to confess we like everything by turns and nothing long. If this should be our turn of mind, and concentration in one direction is not natural to us, we may still find much enjoyment in leisure. This changeful method has even certain advantages, inasmuch as it leads to the exercise of a variety of faculties, and tends to counteract the tendency to narrowness often found in those who confine themselves too devotedly to one pursuit. But, whatever form of recreation we may take up, it should not be treated as a mere time-killer, but followed, as far as possible, with a view to some improvement of mind and character. These great ends even our ordinary amusements may, to some extent, be made to serve.

As the nature of our work confines us so much within doors, it is important that we should adopt at least one form of exercise that must be taken in the open air. It may be tennis, cricket, rowing, cycling, or merely walking, but in any case a fair proportion of our time should be given to it out of doors. In these cycling days it would appear quite old-fashioned to prefer walking, and walking tours are almost things of the past. Yet, after all due allowance is made for the comparative slowness of this mode of getting over the ground, it has certain advantages. For instance, a man can take walking exercise in all states of the weather. Fine or wet, the daily walk need not be foregone either in winter or summer. To insure this it is an excellent plan to live, if possible, about half-an-hour's walk from your place of business, and out of the track of trains and buses, so that this hour a day in the air becomes a necessity. Walking will not carry us so quickly into the country as we can get there by cycling, it is true, but when once among fine scenery the landscape and objects of interest can be seen to greater advantage on foot than when passing through it on a cycle, at even the moderate pace of eight or nine miles an hour. It also distracts the mind less from thought and conversation, and is less likely to lead to over-exertion. At the same time I am far from wishing to underrate the cycle, for some of the pleasantest hours of my holidays during the last seven years have been spent on a "bike." Its advantages in certain ways are obvious, yet they need not blind us to the fact that under many circumstances walking is preferable. The position adopted by many cyclists is, however, far from satisfactory, the chief faults being that the back is too much bent and the hands placed too near each other on the handle-bar. The handle-bar of the earlier type of safety was constructed with the handles well apart, and tended less to contract the chest than that of more recent patterns. During the last few years it has undergone a shortening which brings the hands nearer to each other, with a corresponding contraction of the chest. To make matters worse it has become a habit with some riders to bring the hands together till they are actually in contact on the centre of the handle-bar. Now, in taking walking exercise the shoulders may be kept back and the chest thoroughly expanded.

On the pleasure of those sports which depend on the pursuit and destruction of living creatures I do not propose to dwell. They have no doubt their special excitements and attractions, and undoubtedly they may be made instrumental in the development of certain useful traits of character, such as patience and courage, a quick eye, a ready hand, and so forth; but for such of us as believe that these qualities can be cultivated more humanely in other ways, and object to take our pleasure at the cost of the life and happiness of our humbler fellow beings, such pastimes are inadmissible. I allude now to the pursuit of harmless creatures solely for the purpose of amusement, and not, of course, to the hunting down of those which are a menace to our lives. These, in some places, must necessarily be extirpated. This opinion is, of course, open to the retort that the lower forms of animal life must be kept from a too prolific increase, that animals must be killed, too, for food, and that these facts justify us in destroying them. That may be so, but to seek pleasure in killing, under cover of the name of sport, is a very different affair. It appears to me that any indulgence in sports by which pleasure is obtained through the taking of life, except perhaps that of fierce and dangerous animals, must tend to revive the savage instincts in us, and to crush those feelings of mercy and pity by which they should be controlled.

Of outdoor games, perhaps there is none more healthful than golf, especially for those of us who can no longer call ourselves young. It appears to be a game which can be played at all seasons of the year, and in which there is little or no risk of over-exertion. It has deservedly won a foremost place for itself of late among our national pastimes and has a great reputation as a health restorer.

The pleasures of amateur photography are within the reach of those among us who are not fortunate enough to possess any special artistic gift. If it had been our happy lot to possess a gift for sketching and painting the lovely forms and colours of nature, what more delightful mode of filling up our summer leisure could we wish for? But, short of this, a great deal of pleasure and excellent training may be obtained from the art of photography.

Landscape photography leads us much into the fresh air, and in the search for pretty bits of landscape or fine sky effects, we are drawn to concentrate our attention on forms, colours, textures, and changes in nature, and are thus insensibly educated to a larger capacity for appreciation and enjoyment.

The same kind of good follows from the pursuit of other studies, such as geology, botany, &c., by means of which we are brought to a more intimate knowledge of nature at first hand by our own direct observation, among the hills, on the sea-shore, or in the fields and woods.

The faculty of observation is a great resource to those who possess it. It is recorded of a certain prisoner in Pentonville prison that he solaced himself during the one hour a day allowed for open-air exercise by picking up some knowledge of natural history. "In front of the airing-ground there was a grass-plot," he says, "and I distinguished there about a dozen different sorts of small plants and grasses, to which I gave names of my own. I found out at what time they came into flower, how long they remained, and the degree to which each was able to bear the drought that occurred. I learned the habits of several kinds of insects; and the sparrows building their nests or feeding their young in the holes of the wall afforded me another source of entertainment."

This love of observation may lead some of us to the use of the microscope and the investigation of some of the many interesting problems connected with our own specialty.

Our possible resources for winter evenings are too various and numerous to be treated of in the short time at our disposal.

A good novel or essay, a volume of poems, a game of billiards, chess, or whist, is each excellent in its way. Even the writing of a paper for some literary or scientific society may be indulged in occasionally without harm; though, to judge by the experience of one so little gifted for it as myself, it is too laborious an affair to be termed an amusement.

One subject, however, I should specially like to speak about, namely, music. To all who possess a correct voice, even though it be a feeble one, and are fairly fond of music, I would say cultivate that voice and taste. It may be that you will never find yourself repaid for the labour of study by the pleasures of solo singing, but you will find an ample compensation in joining with others in concerted music. Choral singing is a delightful recreation. It affords a complete change from our usual occupations and a cheerful means of exercise for body and mind alike. But we are not all built alike, and we cannot do better than follow Emerson's advice that we should avoid a mere slavish imitation of others, however eminent, and live our personal life in the way for which we may have a bent. A scientific or philosophical treatise, or some political or social question, will afford relaxation for one, while another will prefer some practical, mechanical employment, such as wood-turning, carving, joinery, inventions of various kinds, including the invention and improvement of dental appliances. To a goodly few of our members we are much indebted for their serviceable work in this direction. Their labours have lightened our own, and enlarged the field in which our art may be made useful to others.

Lastly, if our bent should incline us to a too absorbed attention to that region of the scientific field which contents itself with the mere surface relation of things, let us turn to the sad, grave words of the great evolutionist, Charles Darwin, and learn from him that such a form of knowledge, merely intellectual and superficial as it is, if taken apart from the deep significance of its meaning as interpreted by the moral and spiritual nature, may be purchased at too fearful a price.

From the pen of so gifted and eloquent an exponent of material knowledge these words come with additional weight and significance, and bear testimony to the penalties inevitably incurred through the neglect of our higher selves. "Up to the age of thirty or beyond it," he says ("Life and Letters of Charles Darwin," vol. i., p. 81), "poetry of many kinds, such as the works of Milton, Gray, Byron, Wordsworth, Coleridge and Shelley, gave me great pleasure; and even as a schoolboy I took intense delight in Shakespeare, especially in the historical plays. I have also said that pictures gave me considerable, and music very great, delight. But now, for many years, I cannot endure to read a line of poetry; I have tried lately to read Shakespeare, but found it so intolerably dull that it nauseated me. I have almost lost my taste for pictures and music. . . . My mind seems to have become a kind of machine for grinding general laws out of large collections of facts; but why this should have caused the atrophy of that part of the brain alone on which the higher tastes depend I cannot conceive. A man with a mind more organised or better constituted than mine would not, I suppose, have thus suffered, and if I had to live my life again I would have made it a rule to read some poetry, and listen to some music, at least once a week; for perhaps the parts of my brain now atrophied would thus have been kept active through use. The loss of these tastes is a loss of happiness and may possibly be injurious to the intellect, and more probably to the moral character, by enfeebling the emotional part of our nature." Is not this a pathetic confession, friends? Alas, that a genius so great should have to confess to such a poverty in wisdom; that so observant an intellect should but have served to blind its owner to the higher joys of life and all its profounder meanings.

But the world has very much for which to thank Charles Darwin, for the example of a life which on the whole was noble and devoted, and for a rich heritage of knowledge. And not the least among the the great facts he has been instrumental in re-impressing upon us is the very ancient one that some of the deepest and truest things in life may become hidden from the wise, though revealed to the simple.

From him, too, we may take a timely warning and improve our knowledge of how to live wisely—of how to work and how to play.

Abstracts and Translations.

Technical Training in American Dental Schools.[1]

By W. BOOTH PEARSALL, F.R.C.S.

The subject of mechanical, manual, or digital training has been actively written and spoken about since 1840 in our country and in the United States of America. I will not go into a history of the movement, as you must be familiar with the writings of dentists who have placed their knowledge and experience at our service. I will therefore confine myself to the condition of the dental technic movement as it is at present understood and practised in the United States.

I first saw the work I am about to speak of practically carried out in 1895 in Chicago, and afterwards in several other colleges. I had an opportunity of again seeing the schools last year at greater leisure, and I was so much interested and impressed with the progress that has taken place that I have been tempted to bring a brief account of what I saw before you to-day.

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[1] This paper having been already published, according to usage we confine ourselves to a limited abstract.

Meetings are held from time to time of duly accredited delegates from various colleges which are amongst the most active and enterprising centres of dental education. So great is the interest taken in the subject that college after college joins the movement year after year, with the gratifying result that everywhere dental education and technical progress march on hand in hand.

So far as my observation has extended, we do not attempt in our dental teaching here, in schools or colleges, any mechanical training in a systematic way.

If we did this work, we would inevitably have meetings to discuss and record the best ways of teaching our special work. At the Birmingham meeting of the Association in 1893, I endeavoured to form a small association of dentists engaged in teaching students, for the purpose of organising dental museums in suitable schools, by interchange of good or typical casts and specimens, by designing diagrams and casts and other means of illustrating lectures or demonstrations, in practical matters. Had this small association gone on, we would have had in several places in the United Kingdom sets of examples of good technic work for exhibition or study.

Although I was quite frank about the simplicity of the machinery to effect this object, the way it could be carried on by correspondence and by holding one meeting during the Annual Meeting of the British Dental Association, the men I wished to join, but who were not present when I put the matter forward, declined to have anything to do with it unless I supplied them with the rules and constitution of the association I had in mind.

You will see, from the nature of the examples I have been able to gather, that the making of a dentist has become very much systematised and specialised. All the examples have been made by *freshmen*, the greater number of whom had no mechanical or dental training of any kind *before* they entered the dental school. As compared with our methods, or rather our want of method in dental education, I think the results of nine months' steady work are shown to be not only gratifying, but remarkable. Many of us would, I know, gladly take advantage of such training were it within our reach.

In order to thoroughly make the student at home in his knowledge of the human teeth, *facsimiles* of natural teeth are made in vegetable ivory, and each student is given natural teeth to copy in this material. The carved teeth are also used to show how cavities are prepared for the different kinds of fillings, as the tendency of human teeth is to split and crack when they become dry.

Instrument making is also taught, as you can see by the examples I pass round. They are all made to exact measurements, and this work has led to a very great reform in the classification of such instruments by Professor G. V. Black, which has already borne good fruit all over the United States in a more practical and scientific method of instrumentation with regard to cavities of decay in the teeth. One point about this work to which I wish to direct your attention is that, whatever is the work in hand or the nature of the example to be copied in classes, *all* the students are set at work on the same thing. This, I am told, teaches the general body of the class more rapidly than if each student had a special bit of work to do. In plate-making, for instance, each student in the class gets the same plaster model and zinc casts to work from.

In crown making all the class make the same crowns, and in this way every student has to make the technic example laid down in the syllabus, till his work gains the approval of the demonstrator and professor.

To some of you this scheme of practical work may seem impossible. It may be that it is impracticable in England; it is not so in the United States. Students who idle or trifle with this work are severely "dropped." If the negligent pupil cannot fall in with the zealous interest in the subject taken by the class, he is obliged to go to some other work in which he is more interested.

Mr. Booth Pearsall read a letter from Dr. Kirk, of the University of Pennsylvania, giving an explanatory account of the specimens sent to him (Mr. Booth Pearsall) as examples of the work of freshmen in American Dental Schools. Dr. Kirk, in his letter, says:—

I have just received an official report from the Board of Regents of the State of New York, showing that the graduates of this department of the University of Pennsylvania attained the highest general average of the graduates of all other institutions seeking the licence to practise in New York State, and the result of New York is in harmony with the attainments of our graduates elsewhere throughout the United States wherever they have come in contact with State Boards of Dental Examiners. I attribute this result as much to the careful system of inspection and supervision as I do to the character of instruction given."

Is it not high time that some such system should be put into our dental education here? Were such work systematically carried out, we would not only have better dentists, but the thorough nature of the training would "choke off" the unworthy and the idle.

The whole nature of dentistry would change for the better, and we would not see the unskilful and incapable work which disfigures so many human faces. Incompetent men would not be able to gather fees for the inadequate instruction of articled pupils, and a more ideal and advanced method of practice would be carried on all over our profession.

I have to thank very gratefully and heartily my kind friend, Dr. W. Truman Brophy, the Dean of the Chicago College of Dental Surgery, Dr. C. N. Johnson and Dr. Goslee, of the same college, for the collection of technic work which has been so carefully set out as you see it.

I have also to thank Dr. Edward C. Kirk, Dean of the Dental Department of the University of Pennsylvania, better known to many of you as the editor of the *Dental Cosmos*, for the fine collection of examples of work done by his students. I have little doubt, if this subject interested our (*real*) dental teachers at home, that our brethren across the Atlantic (were they properly approached) would send even a larger and more comprehensive set of examples for our appreciation and possibly imitation in forwarding the technic movement so much to be desired.

SIMPLE TEST FOR GOOD PLASTER.—The quality of plaster may be tested by simply squeezing it with the hand. If it cohere slightly and keeps in position after the hand has been gently opened, it is good; but if it falls to pieces immediately, it has been injured.—*Australian Journal of Dentistry.*

On More Recent Methods in the Treatment of Diseased Pulps.

By Dr. H. BOENNECKEN, K.K.,

PROFESSOR OF DENTAL THERAPEUTICS AT THE GERMAN UNIVERSITY OF PRAGUE.

(Translated from the *Austro-Hungarian Quarterly Periodical of Dental Therapeutics.*)

I REPORTED a year ago in this periodical (on 500 cases under my own observation) respecting two more recent methods in the treatment of diseased pulps, viz., first on the mummification of the pulp by formaldehyde after previous cauterisation with arsenious acid, and secondly on the treatment of pulp gangrene by sulphuric acid, according to Callahan.

Last year I had the opportunity of greatly extending my experience in numerous clinical and private cases, on these two undoubtedly very important points for every practitioner, and therefore I return once more to the same theme.

Encouraged by former observations, I treated last year, not only in my own private practice but also in hospitals, all cases (about 400) of acute and chronic pulpitis in molars and premolars similarly, in the following manner: I premise that cases of purulent decay of the pulp and of commencing gangrene were strictly excluded from this treatment. Two or three days after the process of cauterisation by arsenious acid, the pulp cavity was opened as wide as possible with a strong round burr, first of all without a cofferdam, and the crown pulp amputated. For the removal of the remains of tissue, the warm water syringe is used, which is indispensable for this preliminary process of the operation.

Then the radicular portions of the pulp are examined as to their vitality with a sterilised Donaldson's bristle. If the stumps on being probed do not show the usual extreme sensitiveness, and one can penetrate deeply into the canal with a bristle without the patient experiencing any pain, one is justified in believing that the pulp of the root in question is destroyed by suppuration or commencing gangrene. For these cases the formaldehyde treatment is quite inappropriate. Here the clearing of the canals and subsequent thorough sterilisation is to be performed instead; the sulphuric acid process, which will be mentioned further on, is the right one to use. Should it be thought possible to stop with safety a commencing gangrene, then it is sufficient after clearing the canal in question of its contents, to fill it up with soft formol paste.

But if the root stumps of the pulp, as will be observed in the majority of cases, are extremely sensitive in being probed, then the formol treatment, as we will call it for the sake of abbreviation, is used. The cofferdam is put on and now the first part of the operation commences, the thorough washing out of the pulp cavity with formalin of from 5 to 10 per cent., "the formol bath" of the pulp stumps, as it is called in my clinic. This process is, as I already stated a year ago, of the greatest importance for the success of the treatment. For the washing out of the pulp cavity we use sterilised cotton-wool pads. The drop pincette recommended by Adolph Witzel, for introducing the liquid medicament seems to me very judicious. After thoroughly saturating the root pulp with formalin, the second process of the operation follows, viz., the filling up of the pulp cavity with formol paste. From the tube preparation used by us for some time a sufficiently large piece is taken up with the point of the stopper, introduced into the cavity of the pulp and pressed uniformly with a wadding pad on the pulp stumps. Upon the paste, which according to a more recent prescription, has attained a certain degree of consistency, a phosphate cement covering is at once put, and on this the definite stopping.

The results of this treatment were also last year very satisfactory. In no case was the extraction of the tooth necessary. In four cases the stopping had to be removed after some time on account of pain being felt in the periosteum. The root canals were empty, no smell of gangrene discernible. After a treatment with sulphuric acid natrium super-oxide, the teeth were again filled up and have since remained reactionless. Here was, without doubt, a question of commencing gangrene of the pulp, although not yet distinguishable to the sense of smell, therefore an error in the diagnosis. In a few other cases after some days or weeks following the treatment the patients complained of sensitiveness of the tooth to heat and cold. To alleviate this a painting of iodine was applied, after which the pain gradually abated. In these cases the coagulating effect of the formaldehyde had been insufficient, neither the formalin nor the formol paste had come into sufficiently close contact with the open surface of the pulp stumps. Consequently the effect on the lower part was a gradual one. It is remarkable how rapidly slight irritation of the periosteum in cases of pulpaperiostitis yields to formol treatment. While after extirpation of the pulp and successive filling up of the root, the tooth usually becomes useless for mastication for eight to fourteen days, even sometimes for a longer period on account of slight irritation of the root, after formol treatment, recovery of the power of mastication follows with surprising promptness. On the day after stopping, the tooth is for the most part insensible to percussion.

Two things are important for the success of the treatment, first the purity of the formalin, and secondly the good condition of the paste. From the preparation which is purchased at the chemist's in well sealed dark bottles, we prepare every week fresh solutions of from 5 to 10 per cent., as experience proves that formaldhyde easily dissolves in formic acid and methyl alcohol when in contact with the air, and therefore becomes useless for our purpose.

The formol paste mentioned in my last year's work was too variable in the concentration of the effective principle, and at the same time possessed too little consistency to be quite satisfactory. Dr. Scheuer conceived the happy idea of putting dental preparations into small air-tight, lock-fast tubes, thus preventing any change in their combination. According to his precedent, I had the formol paste prepared for me in tubes by the chemist, E. von Tongel, at the apothecary's shop, "The White Lion," Prague, Graben, and convinced myself of the uniformly good effect of the paste which has now become much more tractable, being only distinguished from my former recipe in containing a larger quantity of formaldehyde and a greater consistency by the aid of talcum. Any of my colleagues who interest themselves in this matter can purchase the formol paste as it is used in the Prague clinic at professional (apothecary's) price. Scheuer's preparation which contains no thymol and cocaine, but oil of cloves and carbolic acid instead, I applied for a time with the same satisfactory result; when at last I reverted to my own paste I was only guided by the theoretical reflection that possibly formaldehyde and oil of cloves are not sufficient to produce a safe lasting sterilisation of the pulp tissue for a space of many years. Formaldehyde evaporates after a short time; also the volatile oil, thymol, seems to me to be only sure and reliable as regards the duration of sterilisation, and, therefore, my formol paste consists mostly of finely powdered thymol. As I convinced myself by experiments in calves' pulps and recently extracted human teeth, thymol penetrates (exceedingly slowly, in the space of a few weeks) the pulp tissue to the tip of the root. The rapid protoplasmic coagulation of the formaldehyde vapours produces in a few hours

—in the most unfavourable cases in a few days—hardness of the tissue; a few weeks later, when the formaldehyde vapours are probably already fully diffused, the pulp stump is impregnated with the thymol, which is very difficult to dissolve. Whether this thymol sterilisation is a lasting one, as we will assume at first, time will show. I would also not dispense with the large amount of cocaine contained in the paste, as according to my former experience concentrated formol vapours may cause considerable pain even in the cauterised pulp. In Scheuer's paste the addition of oil of cloves seems to have the same pain-allaying effect as cocaine.

In numerous cases of pulpitis partialis we have applied the paste direct on the exposed pulp, without a preceding application of arsenious acid in order to study the effect of formaldehyde on inflamed pulps. Again, in other places where the exposure of the pulp was impossible on account of great pain, we covered the bottom of the cavity with formol paste and then closed up the cavity with cement. In consequence of the large quantity of cocaine contained, the pain which immediately follows this operation is very slight, not to be compared with the pain caused by a direct application of the wadding pad impregnated with formalin on the pulp. In the greater part of all experiments, the teeth thus treated have remained perfectly painless hitherto. With other patients signs of irritation usually appeared after some weeks or months. In these cases, after removal of stopping, the dentine, formerly very sensitive, had become quite insensible. The crown pulp was either quite or only partly hardened and showed the characteristic hard elastic consistency of tissue hardened in formalin. The root pulps were, on the other hand, still very sensitive and bled on being probed. Last year's observation confirmed my conviction that, by the direct working in of formaldehyde vapours upon inflamed pulps, no thorough cure in the course of the inflammation, and no "restitutio in integrum," is attained, but quite the opposite, viz., a coagulation necrosis therefore destruction of tissue. The coagulating influence of formaldehyde is uncertain and uncontrollable in its effect on a small punctiform exposure of the pulp. After application of formaldehyde preparations on the pulp, which is either exposed or protected by a thin layer of dentine, the pulp of the crown becomes usually quite or partially hardened, therefore deprived of its vitality, whilst the root pulp usually preserves its vitality and sooner or later may cause pain. The pain will probably occur later on if the root pulp at the time of treatment already contained causes for inflammation. According to my experience hitherto, I must warn against direct application of formaldehyde on inflamed pulps. The commonly accepted idea, that by this an arrest in the process of inflammation is attained is a mistaken one. Jul. Witzel has also arrived at the same conclusions through his observation, and expresses his conviction most decidedly in his last work.

The sovereign remedy for the treatment of inflamed pulps is and remains arsenious acid. And the only unobjectionable after treatment is, and remains, the total extirpation of the pulp with successive antiseptic filling up of the root. I believe these two methods in the treatment of the pulp will always rise again victoriously out of the confusion of newer methods. Only through long years of observation in many thousands of single cases, observations which can only be made by the joint labour of all dentists, shall we arrive at a sure decision of the question, whether the amputation of the head of the pulp with successive formol treatment is equivalent or not to the old method of filling up the root. Until the final solution of this question we must look upon the formol treatment as a tolerably good substitute for the older tried method.

I am sorry to say that at the time of writing this the new work of Adolph Witzel, the senior master of dental antiseptic therapeutics, has not reached me. I see, however, from the work of his brother Julius, which has already been quoted several times, that Adolph Witzel recommends as a greater safety for the deep effect of the formaldehyde during the formol bath, the "half probing" of the root canal. In withdrawing the fine probe the liquid is pressed into the punctured canal and the pulp root becomes thoroughly impregnated with the solution of formol. I consider this proposition very judicious, but am afraid that the half probing will frequently not be practicable on account of its great painfulness. This half probing is not indispensable but undoubtedly assists in the certainty of its lasting success. The essential thing is and remains in any case a copious formol bath, and the covering of the pulp stump with a paste, impregnated as much as possible with formaldehyde vapour, containing at the same time an abundant quantity of thymol.

All cases of pulp gangrene were treated in the Prague Clinic last year according to Callahan's 50 per cent. sulphuric acid method. The neutralisation was performed with natrium superoxide. The results have hitherto proved so satisfactory that I still entertain the same views as last year, viz., that Callahan's method shows the greatest progress that has been made in the treatment of the roots since the introduction of antiseptics. A small but valuable modification, which has been practically experimented by me for some time I can most strongly recommend to my colleagues. After the treatment by sulphuric acid has been performed "lege artis," we fill the canals with formol paste. At a second sitting, after from eight to fourteen days, we repeat the treatment of the sulphuric acid and fill up the canals with formol paste; over this a covering of cement and then the definite stopping. If at the beginning of the second sitting a smell of gangrene is still discernible, the patient is asked for a third attendance. However, if the treatment is carefully performed, a third sitting can always be dispensed with. The formol paste is introduced into the canals by means of a Donaldson's bristle, after being diluted with a drop of from 5 to 10 per cent. formalin; during this process, a pressure through the apical foramen is carefully to be avoided. As after the final treatment by sulphuric acid an overflow of natrium superoxide remains in the canals, a development of gas originates, caused mostly by the effect of the somewhat reactionary acid of formalin upon the strong alkali Pure oxygen is formed, the same gas which separates itself by the reaction of $H_2 SO_4$ $Na O_2$ from the apparent split of the $H_2 O_2$ molecule in consequence of the neutralising warmth.

The disinfecting effect of the formaldehyde vapours developed after the introduction of the formol paste in the canals, is attained, according to my experience, by no other antiseptic known. Usually the canals are perfectly sterile a few days after the first sitting. The formol paste remains as a definite stopping of the root in all cases of suspected gangrene, even in such where a part of the root pulp is still sensitive. This has the great advantage that the canals filled up with the paste, which remains soft, can at any time be probed even after the lapse of years. All who understand the difficulty which a root canal hermetically closed with cement or gutta percha presents in the treatment of pericementitis, will be ready to acknowledge the judiciousness of the proposed stopping of the root. Formol paste has therefore become to us an indispensable remedy, as well for the treatment of inflammation of the pulp as also in the after treatment of gangrene of the pulp.

Editorials.

Companies Law.

BEFORE another issue of this Journal reaches our members it is possible that legislation upon this question may have reached a critical stage. The question is one of vital importance to all who practise in a legitimate manner surgery or medicine, or any of their sub-divisions or specialities. To dental surgeons it is of supreme importance, and, since every member of our Association presumably votes for some member of the Lower House, it is in the power of each of our readers to influence his own member of the Legislature and any other members of Parliament with whom he may be acquainted. Under these circumstances it may prove useful to recapitulate once more, as briefly and clearly as possible, what are the issues at stake, what we hope for, and how we hope to obtain it.

As the law stands at present no person can use titles, or otherwise pretend to be fitted to practise surgery, medicine, midwifery, dentistry, &c., unless that person has undergone certain formalities of education, examination, and qualification, to enable his or her name to be enrolled upon a register by the General Medical Council. A company has, however, been held not to be a "person," and therefore not to be liable to the restrictions imposed upon persons. The law forbids any unregistered person to do certain things, but does not reach seven persons if enrolled as a company, so that they can defy the law without let or hindrance. That the anomalous condition of affairs was recognised by the Legislature some years ago is proved by the passing of the Interpretation Act of 1889, which provided as follows:—

INTERPRETATION ACT, 1889 (52 and 53 Vic., ch. 63).

Sec. 2.—(1) In the construction of every enactment relating to an offence punishable on indictment or on summary conviction, whether contained in an Act passed before or after the commencement of this Act, the expression "person" shall, unless the contrary intention appears, include a body corporate.

The last sentence as interpreted places the Medical and Dental Acts outside the protection of this Interpretation Act.

All that is now asked is that our Medical and Dental Acts should be freed from this gross absurdity—that in future it should not be possible for a man and his wife and sister, his shop boy, attorney, and his lodger to enrol themselves as a company at a nominal expense and defy the law. The total paid-up capital of these companies rarely exceeds £7, so that they can have no financial justification for their existence, and a company without financial justification must obviously have been formed for purposes that will not bear the light, and these considerations may explain the frequent coincidence of the formation of a one-man company as a speedy sequence to the prosecution and committal of persons under the Dentists Act, of which it would be easy to cite many examples.

The highest legal authorities are agreed upon the urgent need for this simple reform; it interferes with no vested rights, it creates no new restrictions, it simply completes a wise barrier that has already been carried nearly round the defenceless public to protect them from the inroads of the unscrupulous charlatan and quack, a barrier that is so far of little use because of the gap which we are now seeking to close. No one will or can be hurt by the proposed legislation but the evil-doer, and all the British public will be benefited and protected. Let each of our members do his utmost to promote the success of this great step in the direction of just and humane legislation.

A New Degree.

THIS Journal exists mainly to record the doings and the opinions of the Association whose name it bears; it is therefore its duty to discuss important questions that have occupied the attention of its members at their Annual Meeting. There is no doubt that the question of a higher degree in dentistry than our licentiateship occupied much of the attention of our members at the late meeting at Ipswich. It was foreshadowed in the address of the new President, who saw the difficulties and had not apparently been convinced of the advantages of the proposed change. When the question was debated the desirability of a higher degree was advocated with all the energy and eloquence that Mr. George Cunningham could bring to bear. Whatever its merits, it certainly lost nothing that skilful advocacy could lend to advance its cause. The arguments upon the other side were very clearly presented by various speakers, and finally the assembled body voted against the proposed change—in other words, the Association at its Annual Meeting decided that it was not prepared to rush into a demand for new diplomas. Many aspects of the question may have been present to the minds of members. They may have asked themselves, "Do we want a new diploma? if so, do we want one divorced from surgery? if we do, are we likely to get it? and is the proposed means the likeliest to give it us?" We must certainly be practically unanimous about all these points before the proposed change could have any prospect of success, or, indeed, before success would be desirable. Additional degrees requiring a wider scope of education are open now to all who have the energy and time to obtain them. Many of our members have already decorated themselves with academical surgical and scientific honours not required for medical or dental registration. If a new diploma is to be something more (or less) than these, something purely dental, there may be hidden in its conception the danger most likely of all to be fatal to us as a profession, namely, an alienation from surgery and medicine—an estrangement from the great profession with which, for more than a quarter of a century, we have striven successfully to ally ourselves. This is no new question; it has occupied the attention of the leaders of dentistry for years. It has been thought that some position of added dignity as a dentist should be within the reach of those who think they might attain it. There is a general impression that comparatively few of those who obtain the dental licence are able to credit themselves with such a superfluity of marks as to class them much above their fellows. Of those happy few nearly all are men who seek and obtain a diploma in addition to the licentiateship. This impression is borne out by the reports made in 1895 by the inspector appointed by the General Medical

Council, to report upon dental examinations throughout the United Kingdom. Those who take an interest in the question will find much interesting matter bearing upon dental education in these reports.

Under these circumstances, and considering all aspects of the case, the verdict of the British Dental Association has been that it does not propose to take any further steps in the matter.

Much advantage may accrue from a free ventilation of the arguments on either side in our correspondence column, and if those of our readers who have fresh arguments or new facts to adduce will favour us with them, we will publish them as promptly as the exigencies of space permit.

We are glad to see that the efforts of our Association in the direction of the work at present represented by the School Dentists, Society are already bringing about good results. It is gratifying to know that the Ipswich Board of Guardians appreciate these efforts in recognising to the full the value of the dental supervision which is being carried out in connection with St. John's Home. The *East Anglian Times* of June 10, in an account of the meeting of the Board of Guardians, mentions that the chairman drew attention to a report he had received from the members of the School Dentists' Society, who visited the Home at Whitsuntide. The report showed that the visits of Mr. Tracy—the dentist at the Home—had been productive of much good, both in the direction of general cleanliness and the amelioration and prevention of disease. The Society suggested that the dentist should visit the Home once or twice a month, and that a record of his work should be kept. The chairman moved that their hearty thanks be given to the School Dentists' Society, with an assurance that every attention would be given to their report. The motion was carried, and it was decided to refer the report to the St. John's Home Committee.

Correspondence.

We do not hold ourselves responsible for the views expressed by our correspondents.

Degrees in Dentistry—To be or not to be, that is the Question.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—This most important question scarcely had the discussion it deserves at our recent meeting in Ipswich, partly because it accidentally came at the fag end of a very interesting and busy meeting, partly owing to the natural diffidence which many felt in taking part in a debate already impassioned by previous speakers whom we hold in such sincere regard, partly because some of us, while agreeing with the proposal in the abstract, were not unanimous in detail, and still more on account of the exigencies of the clock and its association with inexorable railway time-tables. Each or all of these considerations had their share in lessening the wish to prolong a debate which already had too much of the personal element in it.

Yet the present moment is so favourable, and similar occurrences so rare, that we hope it may not pass without that just recognition being accorded to dentistry, in the establishment of a degree giving that additional status our scholastic and professional education, our numerical strength as a profession —our importance to the public weal—demand, not to mention the further claims of our position under a special Act of Parliament, a separate register, separate schools, examination and diploma.

The suggestion of some speakers that the present opportunity was one upon which the Association or the profession had no right to speak, as it might merely concern the London schools, is a proposition so weak as to be unconvincing and indefensible. The very objects of our Association are the "maintenance of the honour and interests of the dental profession.' Surely *this* is a question coming within the scope of that clause. Further, from the Secretary's Report, it was the Association that inspired the London Schools to action ; it has been pleaded for on previous occasions by petitions from Branches of the Association ; it is to the honour and interests of the profession that it should now be pressed forward to a consummation. It cannot even be claimed to be a question affecting London only, as it sets a precedent, establishes a principle, is a step difficult of amendment or retraction. We, too, in the provinces, are interested in its success, for we would be anxious if possible to prepare students for its necessary ordeal. Yea, further, we in the provinces supply the numbers that swell the London Schools, so it may truly be said it is a question affecting the interests of the profession throughout the country. Neither can it be a question said to be suddenly sprung upon us, as for years it has been ably advocated both by dental and medical speakers, and, as I have said before in connection with the Scotch University, received the support of Branches.

The advocacy, however, is perhaps more fitly considered by calm reasoning and unprejudiced approach to so important a subject than in the forum of a large meeting, where the excitement engendered by passionate oratory, sophistry of argument, the influence of personality, and other considerations, may sway the multitude, when upon maturer reflection other action would have inevitably followed. It is a strong argument for the establishment of a Board of Education, but apart from that we have *now* an opportunity which many of us hope will not be let to slip, of establishing our just claims and so obtaining a *locus standi*, leaving the development of details to subsequent consideration.

However, be that as it may, the discussion was a great object lesson, one which will never be forgotten, of the how, when and where our hopes lie. For, although the issue seemed to involve only the granting or otherwise of degrees, underlying this there seemed to some of us the major and all-important question, in what direction advance was to be made in the education of the dentist. But this question never came to the test, as the original resolutions had objectionable details which, to start with, materially divided our unanimity; some of these were on the titles to be granted, the question of their being registrable, and whether or no they were to be merely supplemental to the L.D.S.

The claims for a further degree in dentistry are to any fair-minded arbitrator irresistible, the arguments against it weak and irrelevant: that it will "breed dissension;" that there is no unanimous call; that it is being forced; that we are not likely to obtain it; therefore, should not press forward the claim; "merely kicking a dead horse" somebody said; that we want nothing more than the L.D.S.; that if we do we have the "conjoint"—all these are mere forensic outbursts and undeserving of association with the higher and nobler claims of the profession. An English degree has a value apart from any claims which could be urged for a pass examination; it usually does, or theoretically should, betoken a wider, more scholastic, more scientific education, one perhaps more philosophic in its grasp and consideration of the subjects for which it is granted.

While personally being a disciple of the school of thought for maintaining and advancing the value of the L.D.S. to its utmost limits, regarding the prime object of our education to be the production of the most competent dentist, and that should be fulfilled within the meaning of those three letters, yet, as a teacher, I cannot be ignorant of the just aspirations of many entering the profession who have time and means to devote a year or two to the acquisition of a degree. With that object some take degrees in arts, science, medicine, and other subjects—laudable, no doubt—but how much more fitting would it be if they were akin to that about which they should *know*, and which it will be their daily vocation to practise. It is that that has induced many of us to pursue different studies having relation to our profession directly or indirectly, without, however, being capable at present of associating together to give the possessor of the knowledge they afforded a degree. This to some of us is a matter of no importance, and to me seems the truest test of the love of study for her own sake; but against that there are those who are anxious to have, and not without reason, the hall-mark of proficiency in these studies. A degree rightly allotted would grant that desideratum. You cannot ignore the wishes of the age, and, instead of the old-fashioned pursuit of knowledge, you have this wish for titular distinction. It, as well as education, must be fostered, for it is our duty to provide for the maximum as well as the minimum aspirations of students—it is due to the credit of the profession itself.

I do not think this question is urged in the mere covetousness for such a puerile prefix as doctor, &c., but on academic grounds, giving a reward for extended studies, either embracing those already considered essential, or others which may claim to be advantageous to their possessor whilst not an absolute necessity for his professional career.

But let me ask those who oppose these claims for a degree—why urge the desirability of obtaining that chimera, the "conjoint," when you say no other degree is necessary; why, if you wish to maintain and advance the L.D.S., are you not the ones to advocate for its possessor the full privilege of hospital appointments, &c., demonstrating what it is, or should be, a full acknowledgment of the possessor's fitness for such posts? And why this mysterious paradox, to urge upon the Commission the desirability for a degree, then damn it—is it to act the part of mere obstructionists to the just aspirations of the profession?

We are well aware that this degree will not be *sine curriculo.* How much purer, therefore, are our motives when it is advocated in the interests of the profession by educators, by many co-operatively and individually. It is no dog-in-the-manger policy this. No, let us all wish for, work for, the obtaining of a degree by future generations of dentists.

But what general line is to be pursued in these, what may be called, "advanced studies" in dentistry? Are they to be merely subservient to the requirements of the medical diploma or degree, which requires much so foreign to our profession, or are they to strike out and develop a line of their own, advantageous to the profession, its votaries and our education?

Medical diplomas *per se* do *not* serve our best interests; the evidence of the few adherents to their advocacy, though by one or two schools strongly urged, give no ground for their support; in fact, the very opposition of most of the schools at once nullifies that assumption. I have by me letters from the authorities of many of these institutions, in which they emphatically state "they do not urge their men to take these qualifications," and, in fact, "consider they are injurious to the dental profession." What more emphatic testimony could you wish for than that? Again, consider the time required—eight or nine years at the least—to complete such additional studies; it is preposterous; for, as one of the members of the Medical Council wrote to me, "I do not believe in mixing the two courses [medical and dental]; both are spoiled then." One may well ask, why this advocacy for medical diplomas *per se?* No, but you can by a careful selection establish a degree of cognate subjects advantageous to its possessor and obtainable within a reasonable time—a time allotment equal to that of our medical *confrères.*

On the question of registrability of these degrees I do not wish to say much, as it was one of the points in which I felt in opposition to the original resolutions. I think they should not be registrable, and therefore they would come as merely supplemental to the L.D.S.; that diploma, it seems to me, should be the sole portal to our profession, the other, ornamental or useful adjuncts.

However I hope all who take an interest in this question will ventilate their views, that we may yet not be too late to obtain our deserts, &c., with the Commission.

I plead as a younger member of the profession that we may all, by a little more adjustment of our differences, a little more charity, "work harmoniously for the common good." If the cause is right, let us go forward. If wrong, argument will reveal it, and we can abide the result.

DAVID HEADRIDGE.

Dental Education.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—Mr. Campion cannot wish to make a mis-statement or to exaggerate, yet by some accidental slip he certainly has done so when he says that it takes eight years to obtain the conjoint diploma and the L.D.S. It is possible for them to be obtained in six years. Some of us may even consider eight years not too long for a professional education. The youth who commences at 16 would only be 24 at the expiration of that time, and quite young enough to practise his profession.

A student of the Dental Hospital of London and Charing Cross Hospital has in six years accomplished the following: M.B.Lond., L.R.C.P., M.R.C.S., "the Primary Examination" for the F.R.C.S. and the L.D.S.; he is now 23 years of age and received the dental licence at the May Examination.

A student of the Dental Hospital of London, Cambridge, and St. George's Hospital has in eight years obtained the B.A., B.C.Cantab., L.R.C.P., M.R.C.S. and L.D.S.; moreover, he was Saunders Scholar, Ash's Prizeman, won most of the 1st class prizes and a 2nd prize in operative dental surgery.

A student of the Dental Hospital of London and Owens College, secured the M.B., B.Ch.Victoria and L.D.S. in seven years. He was Saunders Scholar, Ash's Prizeman, won most of the 1st class prizes and a Certificate of Honour in operative dental surgery.

These examples in which the educational career has been taken at different educational centres bear out my statement that, given energy and determination, it is possible to accomplish very much in six years.

To those who prefer science the B.Sc. is open, which, together with the L.D.S., can be easily obtained in six years.

This statement is made in the hope of encouraging those who may be entering or have just entered upon their education.

I have no intention of entering further into the controversy about higher dental diplomas and dental degrees than to urge dentists to think many times before they put their hands with real seriousness to this new task. Mr. Mummery's words in his Presidential Address at Ipswich on the subject have my most cordial and hearty support, both as an individual member of our profession and as one who has given much time and thought to the question.

Loyalty—real, true, sincere, and disinterested—to the L.D.S. is what is needed. *One Dental Licence only* should be our watchward, lest each University and Faculty should be tempted to plunge us into a similar chaos of diplomas as is such a weakness to the medical profession, and which it is now so anxious to rectify.

Those who wish to supplement our *one diploma* can do so in arts, in science, or in medicine, or in all three, as some of our number have already done, and as some students are still doing.

It will be a matter for regret should the time ever come when the words so often uttered publicly and privately have to be recalled, that the L.D.S. only is the sign of a dentist.

Your obedient servant,
MORTON SMALE.

Brittle Platinum Pins.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—Mr. Murray and myself are still anxious to gather as many examples of brittle platinum pins in porcelain teeth as our members or the profession can supply us with.

We have been so much encouraged by the very great interest taken in the matter at the Annual Meeting at Ipswich that we again ask through your columns to have defective platinum pins in porcelain teeth sent to us.

We hope the investigation will be carried further by the Association, with the result that only sound platinum pins will appear in all porcelain teeth for the future.

13, *Upper Merrion Street, Dublin,* I am, yours faithfully,
May 31, 1899. W. BOOTH PEARSALL.

Letter from Dr. Stack.

The following letter has been received by the Hon. Secretary of the Association:—

MY DEAR PATERSON,—I feel very much touched and gratified by the action of the British Dental Association in electing me a Fellow, and I beg you will convey to them my heartfelt thanks for the honour they have done me.

Believe me, very sincerely yours,
14, *Idrom Terrace, Blackrock, Dublin,* R. THEODORE STACK.
June 10, 1899.

Association Intelligence.

The Honorary Secretary of the Association desires to emphasise the statement he has on several occasions previously made, viz., that anonymous communications relating to cases of irregular practices, or alleged infringements of the Dentists Act, cannot receive from him that attention he would wish to bestow upon them, or they may deserve.

THE ANNUAL GENERAL MEETING.

THE Annual General Meeting of the Association, held in Ipswich on May 20, 22, and 23, is the second meeting held during the Whitsun holidays, and the success which has attended the gathering again justifies the fixture of a date so closely following upon the departure of winter. It is true the weather was not altogether propitious, but it was better than that experienced in Bath, and would compare favourably with many of the meetings which have been held in the months of July or August. Fortunately, the intervening Sunday, though dull, was fine, and an enjoyable day was spent in excursions, Felixstowe *viâ* the River Orwell proving especially attractive to a large number of members.

There was an informal meeting of members at the Crown and Anchor Hotel on Friday evening, when a pleasant hour was spent in making and renewing acquaintances; but the serious business really commenced on Saturday morning in the Town Hall. The Association were very fortunate this year in finding splendid accommodation, the Town Hall affording every facility for the meetings, reception, and dinner; and the Public Hall, a minute's walk away, provided ample room for the Exhibition and demonstrations. The hotels, too, were none of them more than a few hundred yards from the scene of the Association's work. The only shadow darkening the landscape was the thrashing the golf team suffered in their match with the Ipswich golfers; but the members of the Association, not being collectively enthusiasts of the game, did not allow this drawback to interfere with the enjoyment derived from the gathering.

The social functions were many. On Saturday afternoon, at the invitation of Mr. A. F. Penraven, a delightful trip was made down the river Orwell, one of the most beautiful rivers in England, and the many members accepting the invitation had every reason to be thankful to Mr. Penraven for a few hours of unalloyed pleasure. In the evening a reception was given at the Town Hall by the President and members of the Eastern Counties Branch. The scene was a very animated one. A clever company of vocalists furnished ample entertainment, and an excellent band played a programme of dance music—the appreciation of which was testified by the fact that the ball-room was filled to overflowing.

On Sunday evening the President of the School Dentists' Society, Mr. Sidney Spokes, held a reception at the White Horse Hotel, a building celebrated as being the scene of Mr. Pickwick's adventure with the middle-aged lady. There was a goodly gathering, and if the number of members present is to be taken as an index of the interest manifested towards the newly-formed society, Mr. Spokes has reason to be gratified, and the Society may look forward to a prosperous and useful future. In addition to the Golf Match on Monday, a Smoking Concert was held at the conclusion of the dinner. To solace the ladies for their exclusion from the latter function, stalls were reserved for them at the Lyceum Theatre, where a performance of Mr. Henry Arthur Jones's play, "The Liars," was given by an excellent company. The ladies also had an excursion all to themselves to Stoke Park, the seat of Lord Gwydyr, and were enabled to make the acquaintance of art and nature, in viewing the celebrated Gainsborough pictures which Lord Gwydyr possesses, and obtain a splendid view of the River Orwell. In this respect too it should be mentioned that Lord Gwydyr, notwithstanding his very advanced age, insisted upon conducting the party over his mansion and explaining the many interesting objects of art contained in it. Such kindly attention from so charming a host was suitably acknowledged by Mr. Fenn Cole at the conclusion of the visit. The President's garden party was given in the Lower Arboretum, adjoining Christchurch Mansions, on Tuesday, and was fortunately favoured with sunshine. This function formed a fitting finale to an enjoyable series of entertainments.

The following members signed the attendance book :—

Ackery, J., London.
Anderson, W. D., Glasgow.
Andrew, J. J., Belfast.

Bailey, W. B., London.
Baker, A. E., London.
Baldwin, H., London.
Baly, C. P., London.
Bambridge, H., Great Yarmouth.
Barlow, W., Eastbourne.
Barrett, Chas., London.
Bates, G. L., Harwich.
Bennett, F. J., London.
Bennett, N. G., London.
Bennett, Storer, London.
Betts, E. G., London.
Briault, E. H., Hampstead.
Brooks, H. R. F., Banbury.
Brown, E., Barnstaple.
Browne-Mason, C., Scarborough.
Brunton, G., Leeds.

Canton, F., London.
Caush, D. E., Brighton.
Clarke, S. F., Louth.
Coffin, H. L., London.
Cole, J. Fenn, Ipswich.
Colyer, H. O., Ryde, I. W.
Constant, T. E., Scarborough.
Cornelius, W. F., Teignmouth.
Coxon, S. A., Wisbech.
Coysh, T., London.
Craig, J. T., Leicester.
Cumine, R. H., London.
Cundy, G. J., Nottingham.
Cunningham, G., Cambridge.

Dolamore, W. H., London.
Donagan, A. E., Birmingham.

Elliott, W. T., Birmingham.

Fernald, H. P., Cheltenham.
Fisk, W. J., Watford.
Fisher, W. M., Dundee.
Flintan, F. R., Weybridge.
Fox., P. E., North Shields.

Gaddes, T., Harrogate.
Gill, H. Beadnell, London.
Gillett, R. W., Norwich.
Glaisby, W., York.
Goadby, K. W., London.
Goodman, E., Taunton.

Harcourt, Bosworth, Norwich.
Harding, W. E., Shrewsbury.
Harris, Theodore, London.
Hayman, S. J., Clifton.
Headridge, D., Manchester.
Helyar, W., Bristol.
Hepburn, D., London.
Hern, W., London.
Hilder, A. T., Birmingham.
Holford, W. S., London.
Hope, W. H., Wellingborough.
Humby, W. J., London.
Hunt, W. A., Yeovil.
Husbands, J. E., Canterbury.
Hutchinson, S. J., London.

Jeffery, Louis, London.
Jessop, E. C. Hale, Oxford.
Jones, A., Cambridge.
Jones, A. S., Stamford.

Keall, C. A., London.
Kluht, H. J., London.
Knowles, V., Reading.

Large, C. W., London.
Layton, A., Kettering.
Lennox, R. P., Cambridge.
Lodge, G. H., Rotherham.
Lonnon, F., London.
Love, H., London.
Lumley, J. W., Kirby Moorside

Maden, W. H., Rawtenstall.
Madin, W. T., Birmingham.
Malone, C. A, Ipswich.
Manning, R. H., London.
Mason, H. B., Exeter.
Matthews, A. A., Bradford.
Maxwell, L., Tunbridge Wells.
May, W. J., London.
Mitchell, S., Dewsbury.
Moore, G. P., Dublin.
Mummery, J. Howard, London.
Murray, G. M. P., Dublin.

Neale, W. Breward, Birmingham.
Nicholls, R. E., London.

Parris, R. S., Peterborough.
Parrott, J. E., Birmingham.
Parsons, E., London.
Paterson, W. B., London.
Peall, F. S., London.
Pearsall, W. Booth, Dublin.
Poock, J. A., Norwich.

Read, Lawrence, Newbury.
Redman, J. H., London.

Reeves, S. G., Dublin.
Reinhardt, J. H., London.
Relph, H. J., London.
Renshaw, E., Mansfield.
Rhodes, W. A., Cambridge.
Richards, F. W., Birmingham.
Richards, G. O., Richmond.
Richardson, F. V., Brighton.
Robbins, C., London.
Rose, H., London.
Rose, S. F., London.
Rowbotham, S. B., Ipswich.
Rushton, W., London.

Saunders, J. J. H., Barnstaple.
Schelling, C., London.
Smith, Alfred, London.
Smith, A. Hopewell, London.
Snell, N., Ipswich.
Spokes, Sidney, London.
Stevens, A., London.
Storey, J. C., Hull.

Tanner, T., Manchester.
Taylor, W., Batley.
Thomson, Murray, London.
Turner, H. W., Norwich.
Turner, J. G., London.
Turner, J. Smith, London.

Underwood, A. S., London.

Vice, W. A., Leicester.

Watson, D., Clacton-on-Sea.
West, C., London.
Whittaker, G., Manchester.
Whitrod, H. F., Diss.
Wilkinson, W. H., Aberdeen.
Williams, T. Gill, Newport.
Williams, J. Leon, London.
Williams, H. Lloyd, London.
Wing, J. C., Ipswich.
Wood, C., Berkhamsted.
Wood, J., Brighton.
Wood, W. R., Brighton.
Woodhouse, R. H., London.
Woodruff, W. H., London.
Woods, J. A., Liverpool.

Yeates, G. W., Dublin.

The following visitors also attended the meeting:—J. Choquet (Paris); J. Duncombe (Paris); W. A. Elliston (Ipswich); F. W. Hill (Oxford); W. J. McCardie (Birmingham); T. C. Myers (Guildford); G. New (London); E. Rosenthal (Brussels); W. J. Stephens (Brighton); J. W. Gordon Stewart (Ipswich); E. Sauvez (Paris).

Saturday, May 20.

Meeting of the Representative Board.

A meeting of the Representative Board was held in the Town Hall, Ipswich, on Saturday morning, May 20, prior to the General Meeting. The President, Mr. J. Howard Mummery, occupied the chair, and the following members were present: Messrs. J. Ackery, Storer Bennett, E. G. Betts, W. H. Dolamore, W. Hern (Treasurer), W. A. Hunt (President of the Association), S. G. Hutchinson, W. H. Breward Neale (Vice-president, Representative Board), W. B. Paterson (Hon. Secretary), C. Robbins, W. Rushton, A. Hopewell Smith, S. Spokes, J. Smith Turner (Vice-president), Dr. J. Walker, C. West, W. H. Woodruff (London); G. Brunton (Leeds), J. Fenn Cole (Ipswich), T. Gaddes (Harrogate), W. E. Harding (Shrewsbury), D. Headridge (Manchester), W. Helyar (Clifton), A. T. Hilder (Birmingham), A. Jones, R. P. Lennox (Cambridge); H. B Mason (Exeter), Lawrence Read (Newbury), J. H. Redman and F. V. Richardson (Brighton), F. W. Richards (Birmingham), and J. C. Storey (Hull).

The HON. SECRETARY read the minutes of the last meeting, which were confirmed.

Communications regretting inability to be present at the meeting were announced as having been received from Messrs. J. S. Amoore, F. Harrison, J. C. Foran and W. H. Coffin.

On the motion of Mr. REDMAN, the reports of the Treasurer and Hon. Secretary, previously circulated, were taken as read and ordered to be presented to the General Meeting.

The PRESIDENT announced that two invitations from Branches had been received with regard to the Association's Annual General Meeting in 1900, viz.: for the Meeting to be held in Brighton at Whitsuntide; or to meet at Leeds, at a time to be hereafter arranged. Mr. J. H. Redman had been suggested as President by the Southern Counties Branch, and Mr. G. Brunton as President by the Midland Branch.

A discussion ensued, and finally upon a division the votes were found to be so evenly divided that the President decided to forward the two invitations to the General Meeting instead of a recommendation on behalf of the Board.

During the discussion it was elicited that by a standing order of the Board it would follow that the Association should meet in London in 1901. Mr. West (President of the Metropolitan Branch) gave notice that he would move the suspension of the order to allow of both the Midland and Southern Counties Branch invitations being accepted consecutively.

A resolution from the Business Committee with regard to the attitude of the Association towards the New London University was next considered, to the effect that the policy of supporting the memorial of the Dental Schools of the Metropolis to the University Commissioners now sitting for a higher dental degree, or that of taking no further action in the matter, should be decided by the Board.

The PRESIDENT explained that the Board had initiated the question by requesting the Dental Schools of the Metropolis to seek for recognition of their teachers in the New University before it was opened and all its arrangements finally established. The Dental Schools had not only sought for this recognition but had asked the Commissioners organising the University to establish a dental degree which might be looked upon as an Honours Degree.

A long discussion ensued, and in the end it was decided to refer the whole question to the General Meeting, as unanimity on the question amongst the members of the Board was impossible.

An important report from the Committee appointed to consider the Companies Acts Amendment Bill and its relation to the dental profession was presented, and, after a short explanatory statement from Mr. Smith Turner and the Hon. Secretary, was approved of.

The TREASURER presented a statement of current accounts, and obtained permission to invest £500 in a trust security.

Certain other business was transacted, and nine candidates were elected members of the Association.

The PRESIDENT: Gentlemen, in concluding my period of office as President of the Representative Board, I have to thank you most cordially for the kind reception you have always given me, and the consideration you have always shown towards me on all occasions. When I accepted office I did so with great trepidation, for I always looked upon the Presidency of the Representative Board as one of the most difficult and onerous posts that can fall to any member of our profession. And, although I cannot say it has been perfectly a path of roses, it has not been anything like so thorny as I had expected. I beg to thank you most warmly, gentlemen, for your kindness.

Mr. J. SMITH TURNER: You are still the President, Sir, I believe, and therefore I will address you in proposing a successor to your bed of roses. The other gentleman has not enthusiastically consented, I will say, to occupy the chair, but he has consented, and I am sure he will do his very best—and my experience of his very best is that it is very good. I beg to propose that Mr. Storer Bennett be the President of the Representative Board.

Mr. BREWARD NEALE: I second that. I am sure that in Mr. Storer Bennett we shall have a most estimable chairman, and I think there will be still fewer thorns for him than Mr. Mummery has met with. But whatever else he is I am sure he will always be an impartial, courteous President, and I believe he will receive the unanimous support of the Board. If I may be allowed I should like, with Mr. Smith Turner's consent, to include a hearty vote of thanks to the retiring President for his very able services in the chair. I only mention this because in our anxiety to conclude this meeting I am afraid it may be overlooked. I am sure we are very much indebted to Mr. Mummery for the great self-sacrifice he has made this morning in leaving his couch at 4 o'clock to preside here. There are not many of us who have the enthusiasm that he evidently has at his youth—I will not say his age. I second this resolution, "That Mr. Storer Bennett be our chairman for the next three years," and with equal pleasure propose a vote of thanks to Mr. Mummery.

Mr. SMITH TURNER said he had great pleasure in seconding the vote of thanks.

Mr. BRUNTON: Will you allow me, sir, to support the motion, and to say I believe the gentleman proposed has the necessary skill and suavity to fill the post. He has my entire confidence. He will be able to avoid our thorns puncturing his tyre.

Mr. W. HERN: I would like to support the motion also, because as a member of the Medical Committee at the Dental Hospital of London I have had the pleasure of knowing Mr. Storer Bennett as chairman, and he has always shown such tact and such ability that I think we shall have in him a most excellent chairman.

The resolution for the election of Mr. Storer Bennett was carried with acclamation.

Mr. J. H. Mummery then vacated the chair, which was taken by Mr. STORER BENNETT, who said: Gentlemen, for the great honour you have conferred upon me in electing me to this very difficult post of chairman, as I have always regarded it, I beg to thank you. I think the words of Mr. Mummery were very much the words I should have been likely to use myself, for I think of all the positions in the British Dental Association, the most difficult one to fill with anything like credit to oneself and advantage to the Association is that of President of the Representative Board. But I also have Mr. Mummery's declaration that it has not, in his case, turned out to be quite so onerous as he feared, and I hope, when my term of office expires, I may also be able to feel that it has been rather a bed of roses than a bed of thorns. At any rate, I will do my best in the time I have to place at your disposal to do to every man justice as far as it is possible—that is to say, I wish, as far as in me lies, to be absolutely impartial—not to have views on one side or the other, but to be as far as possible unbiassed. I thank you most sincerely for the honour you have done me in electing me to this chair.

The thanks of the meeting were then accorded to Mr. Mummery with acclamation.

Mr. MUMMERY: I thank you very cordially for this kind vote of thanks. I will not detain you any longer because it is already late, and you know full well what I would say if there was time to say it.

The meeting then adjourned.

The General Meeting.

The General Meeting was held in the Town Hall on Saturday morning, May 20, when Mr. W. A. HUNT, the retiring President, commenced the proceedings by delivering his Valedictory Address.[1]

Mr. W. A. Hunt then vacated the chair, which was taken by Mr. Howard Mummery amid great cheering.

Mr. J. SMITH TURNER said he had been selected—he believed because of his age—to propose a vote of thanks to Mr. Hunt for his very able address, in which he had given an epitome of the proceedings of the Association during the past year. He could not agree with every word Mr. Hunt had said in that address, because some of it was very personal, but beyond that he thought that any who had followed the history of the Association would agree that in that address there was a valuable record of the history of the Association during the past year. He therefore proposed a very hearty vote of thanks to Mr. Hunt for filling the office of President of the Association during the past year, and for delivering so admirable an address.

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[1] Published on p. 281 as an Original Communication.

Mr. S. J. HUTCHINSON, in seconding the vote of thanks, said it gave him very great pleasure to do so, because Mr. Hunt was one of his oldest friends. It needed no words from him to put before the members how splendidly Mr. Hunt had discharged his duties during his term of office. At the same time he should like to express his regret that Mr. Fenn Cole had felt unable to accept the honourable position. He was sure the members would all join with him in welcoming Mr. Howard Mummery as President.

The resolution was carried with acclamation.

Mr. MUMMERY then rose to deliver his Presidential Address.[1]

Mr. BREWARD NEALE said he had been asked to propose a hearty vote of thanks to the President for his very able address—an address which he ventured to say would be read with the keenest interest by all the intellectual and intelligent classes of the country who were fortunate enough to see it printed, an address which would interest all, whether men, women, mothers and fathers, students or philosophers. Mr. Mummery had taken the office of President to fill a gap at very short notice, and he had come down that day at very considerable inconvenience, which accentuated their indebtedness to him.

Mr. FENN COLE said it gave him very great pleasure to have an opportunity of seconding the proposition, and of thanking Mr. Mummery personally for coming at the last moment to take the presidential chair. As Chairman of the Local Arrangements Committee, he should just like to say that he hoped the Association would consider the smallness of the Branch and their consequent inability to do very much in the way of entertainment, but at the same time they would do their very best, and they trusted that those ladies and gentlemen who were present in Ipswich would, during their stay, manage in some way to enjoy themselves.

Mr. W. A. HUNT put the resolution, which was carried with acclamation.

The PRESIDENT heartily thanked the members for the very kind reception they had given to the efforts on his part, and he also thanked the proposer and seconder for the kind way in which they had moved the resolution, and Mr. Hunt for so kindly putting it to the meeting.

The PRESIDENT announced that Dr. Sauvez, the Secretary of the

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[1] Published on p. 285 as an Original Communication.

International Dental Congress for 1900, and M. Choquet, of Paris, were present as delegates from the Paris Dental Congress.

Mr. GEORGE CUNNINGHAM introduced Dr. Sauvez and M. Choquet, who were most cordially received by the President and the meeting.

Dr. SAUVEZ then addressed the meeting in French, which was translated by Mr. George Cunningham.

Dr. SAUVEZ said M. Choquet and himself represented an association in France analogous to the British Dental Association. He thanked the members very heartily for the kind welcome which had been extended to him, and also for the sympathetic nature of the correspondence which had already taken place with several members of the Association. The dentists of France had not forgotten the welcome in 1888, which were accorded to their friends, Godon and Dubois, who, unfortunately, had since departed, nor had they forgotten the sympathetic telegrams exchanged at the London meeting between their Association and their own national meeting. Encouraged by those remembrances, the French dentists, who formed the organising Committee of the International Dental Congress, had done him the great honour of sending him to convey their fraternal greetings, and to ask the British Dental Association to grant the support of their powerful organisation to the efforts being made for the success of the great professional gathering in Paris. The British Dental Association was good enough in 1889 to send official delegates to the First International Dental Congress, and they remembered very well the sympathetic letter sent by Sir John Tomes, as an Hon. President of that Congress, in which he showed that he was of the same sentiment as his *confrères* in France. To-day he asked his English brethren to do what they did in 1889. He did not come to talk of the advantages that arose from the members of the same profession meeting from time to time in International Congress. The number of members at this Annual Meeting of the Association, the illustrious position of many of those members, the number of the communications and papers, sufficed to make him understand that it was needless for him to say anything on that subject. The members were agreed as to the utility of such meetings. *A fortiori*, therefore, they would be partisans of similar international meetings, where there would be an opportunity of meeting the most eminent practitioners from all countries. He preferred to indicate the special interest for this country, and for the British Dental Association in appointing a National Committee to work with the *confrères* in France. It had been made one of the rules of the Congress, that in order to become a member thereof one must be approved and accepted by the National Committee of each country, if there were one, and that principle was laid down in order to make sure that the members of the Association attending the Congress did not risk meeting persons whom they would not otherwise wish to know or associate with in their own country. It has been, moreover, thought that the International Committee might also assist in organising, classifying, and arranging the communications and demonstrations of each country according to their relative importance. The Organising Committee of the Congress had decided to have reports made on certain dental questions of the moment, and they would be printed in advance and sent to our Board, as it would be a National Committee who alone could say what were the questions of active interest at the moment in its own country, and who were the dentists in the country specially fitted to undertake the making of those reports. Dr. Sauvez pointed out that already National Committees had been appointed in the United States, in Holland, Spain and in Switzerland. The French Government had taken under its patronage the International Dental Congress of 1900, and the meeting would take place in the grand hall of the Palace of the Exposition. In using that word "Exposition" they could imagine all that he might say to make the eyes of the members sparkle at all the attractions of Paris at such a moment. He believed it was preferable and more worthy of himself and the members in addressing a body of dentists to solicit them to go, by making an appeal to their sentiments of brotherly affection and love, and for the glory of their own profession. In conclusion, he thanked the members for the kind attention with which they had listened to his remarks. He also thanked the Committee which had been named at the Representative Board meeting in London, for the sentiments and the sympathy which had been shown to him, and for all the kind attention given to him. He asked that the powers of the present Committee should be enlarged by making it a National Committee representative of this country and of the Association.

The PRESIDENT thought it would be better to refer the matter to the Business Committee to be dealt with by them, and put it from the chair that that should be done. He thanked Dr. Sauvez very much for his communication and Mr. Cunningham for so kindly giving the translation.

Mr. GEORGE CUNNINGHAM said that Dr. Sauvez and M. Choquet would like to carry back with them some sort of satisfaction with regard to the Committee.

The PRESIDENT said he thought the reception Dr. Sauvez had received would enable him to do that.

Mr. CUNNINGHAM understood that when the matter was brought up at the Representative Board there was a difficulty as to their power in the matter, and it was referred to the Annual Meeting of the Association. He desired, with no disrespect to the chair or to the President's ruling, to move that the Committee already formed be appointed a National Committee, and that delegates be sent to the International Dental Congress of 1900.

Mr. **Dolamore** had great pleasure in seconding Mr. Cunningham's motion. He thought it was the intention to bring the matter before the Annual General Meeting, that delegates should be appointed and that the Committee which the Representative Board had appointed should be confirmed by the Annual General Meeting. It might be a mere matter of form, but it would be very courteous.

Mr. **Smith Turner** said he was very unwilling to say any word of opposition to the position which certain gentlemen had taken up in reference to the International Congress. He liked international good feeling, and he liked to meet his colleagues whether he could speak to them in their own language or they could speak to him in his or no. They could generally make themselves understood in one way or another, and he thought it was a good thing that such meetings should be held. But in their good feeling, and in their desire to consent to anything like the cultivation of good feeling, they should not run into difficulties. There were one or two difficulties that presented themselves to him in reference to the International Congress. He did not say that what he was about to mention would induce him to absent himself from that Congress, but the fear on his part was that a false position might be taken up by the Association. Individually he should like to see every member there, but he believed in Paris there were two dental bodies, and how those two bodies were working in regard to the proposed Congress he did not know. He was sorry to say there was another objection which he should have to joining the Congress. He had entertained that objection since the beginning of the year, and he was sorry to say it, but it was founded on an editorial in the *Cosmos*. Referring to the Dental Congress in Paris it said: "To American practitioners the invitation to take an active part and be adequately represented in a movement of this character is always welcomed; for the reason that in America dentistry has had its most active development, and American methods have made the deepest impression upon the growth of dentistry as a whole—facts of which the American practitioner is naturally proud, and which he is always glad of an opportunity to emphasise." Mr. Smith Turner did not blame the American practitioner for being naturally proud, and he was not going to discuss whether they were right in their views of the growth of dentistry, but he did object to going to a Congress which had been taken possession of, as it were, by a nationality which would, in all probability, contribute the largest number of its members. [" No, no."] There would be a large number there.

Mr. Smith Turner went on to quote further from the article in the *Cosmos*, and said he could not help thinking that if the Congress was to be taken possession of according to the sentiments he had just read from the *Cosmos*, they should be very chary as an Association—as an individual he did not say anything about it—as to lending themselves to anything like an active participation in it.

Mr. **Breward Neale** asked what was intended by the proposition before the meeting—what power was delegated to the gentlemen who were appointed, and who those gentlemen were.

The **President** said the Committee consisted of the President of the Association, the Hon. Secretary, Mr. Dolamore, Mr. George Cunningham and Mr. Hopewell Smith. It was a bureau of revision for taking the names of the candidates for the Congress.

Mr. **Breward Neale** asked how the power of that Committee was intended to be enlarged, and to what extent.

The **President** said a resolution would be moved on the subject.

Mr. **George Cunningham** said he had been asked by Monsieur Choquet and Dr. Sauvez to make some remarks in reply to Mr. Smith Turner.

The **President** said there was no motion before the meeting, because he had not the terms of Mr. Cunningham's motion.

Mr. **Cunningham** asked to be allowed to make a remark for those gentlemen, and then he would write out his motion. The question had been asked as to the existence of two organised bodies of the profession in Paris. There was no uncertainty about the matter. There were two parties in Paris—one called the "Stomatologists," and the other "Dentists." There was going to be an International Medical Congress with a section supported by the stomatologists, but it would not meet at the same time as the International Dental Congress, but immediately preceding it. Although Dr. Sauvez was himself a member of the Society of Stomatologists, he was also a member of the National Dental Association of France. M. Choquet was the Secretary-General. Those gentlemen were not present that day as stomatologists, but were talking professedly as members of a dental association to a dental association.

Mr. **Constant** rose to a point of order. He asked whether the meeting was in order in discussing the question at all without notice having been given.

The **President** said the Association was not aware until two days ago that the French gentlemen were coming to the meeting, so that it was impossible to give notice of it. He thought it was only polite to receive them, as they had come.

Mr. **Craig** said it would be within the recollection of the meeting that a few years ago when a Dental Congress was held in Chicago, an exception was taken to some small technical points, and England was not represented. It now appeared from something in a journal which they did not recognise [A voice: "And which is not representative"] as if another hitch were going to take place in the proceedings just at the time when England and America had become more and more like brothers. He thought it was a very great mistake that such words appearing in the *Cosmos*, even if it was a representative journal, should interfere in the least degree with that fraternal spirit which ought to be exhibited, and would be exhibited to the gentlemen who had come from France. If the great International Congress of Dentistry was to be held, England must be there, and there was no Society better able to appoint representatives than the Association. Why let any little quibble of that sort destroy the tie of brotherly friendship between themselves and the men on the other side of the Channel? And now they had the opportunity, let them see to it that the Committee was appointed, and let that Committee go over with credentials from the Association to work out such a scheme which should be representative of British dentistry, and let Great Britain be represented next year, and the Association take its part in the great Congress. It would not do for a few men to go over without being strongly supported by the Association. He argued that the best men should be appointed, and that they should go forth thoroughly representative of the Association. He desired that the Stars and Stripes, the Union Jack, and the Tricolor, if need be, should wave side by side to show that they were all brothers.

The PRESIDENT said that, although no notice of motion had been given, he could put the resolution: "That the Committee already appointed by the Representative Board be empowered to act as a Representative Committee at the International Dental Congress of 1900, with power to add to their numbers." The names of the Committee were: the President of the Association, the Honorary Secretary, the Treasurer, Mr. Cunningham, and Mr. Hopewell Smith.

Mr. SMITH TURNER asked if he had heard correctly a member say that the *Dental Cosmos* was not a representative Journal?

Mr. BOOTH PEARSALL: Yes, sir, you did, from me.

Mr. SMITH TURNER said he received that information with satisfaction.

Mr. W. BOOTH PEARSALL said the *Cosmos* represented a certain force in America. As far as the International Congress was concerned he had had the opportunity of talking with a great many men engaged in the matter, and he gathered that the *Cosmos* was not representative. The best men of America would appear at the International Congress, and the English dentists would be proud to meet them. Mr. Smith Turner had not visited them for a great many years, and things had moved on since then. It must not be considered that matters were the same as they were twenty years ago. He (Mr. Pearsall) had been in more immediate contact with the men than had Mr. Smith Turner, and, so far from being jealous of Englishmen or any other nation, they were very ready to take any hints they could from this country, and give credit for them.

Mr. **Breward Neale** said he did not think, with all due respect to his friend Mr. Smith Turner, that the *Cosmos* had anything to do with the subject. France had sent to England to ask the profession to be represented at the International Congress, and it was of little importance who would be there, or in what numbers different countries would be represented. He did not think those things need enter into their consideration at all. All that had to be done was to make up their minds as to whether it was advantageous for them to be associated officially with the Congress. Personally, he felt it would be a distinct advantage for this country to be represented, and, further, he felt that there were no gentlemen in the country better fitted to conduct the negotiations, and if they thought fit carry them through, than the gentlemen who were appointed by the Association, viz., the executive of the British Dental Association, and he thought they would be perfectly safe in their hands, and that nothing but good could result under their guidance.

On the motion being put it was carried, and the thanks of the meeting were accorded to Dr. Sauvez and M. Choquet for attending as delegates and putting the matter so clearly before the Association.

REPORT OF TREASURER.

Mr. W. **Hern** (Hon. Treasurer) read the Report as follows:—

MR. PRESIDENT AND GENTLEMEN,—I have the privilege at this, the termination of my period of office, to submit to you my report for the past year.

The financial position of the Association will, I hope, be satisfactory to you.

Our reserve fund now amounts to £1,300; £800 of this is invested in India 3½ per cent. Stock, and £500 is on deposit at our bankers. The fund shows an increase of £300 upon the sum I mentioned to you in last year's report, and is accounted for by the increasing membership of the Association, coupled with a decrease in the expenditure for the year, chiefly in legal matters.

The amount of income over expenditure for the year amounts to £278 7s. 2d.; this surplus belongs wholly to the general account.

The legal expenses are the smallest it has been my pleasure to report during my term of office, and are £150 less than last year.

The "Journal" account is not at first sight such a satisfactory one, and has not quite fulfilled the expectations I had formed of it as a source of revenue, judging from its steady upward progress in the three preceding years, and the account shows a deficit this year of £39 10s. 5d. The deficit, however, is well accounted for by the increased amount of pages of printed matter, increased number of copies for stock purposes, and the increased outlay for translations, postages, and illustrations.

The additions to our roll of members since the last Annual Meeting number ninety-six. We have lost by death and by resignation nineteen members, and I regret to say twenty-three have forfeited their membership through non-payment of their subscriptions. These latter, however, I trust, are only suspended. Our total numbers now stand at 1,055.

I ventured to suggest last year that the teachers and deans of dental schools might make an effort to induce the young qualified men leaving the respective schools to join the Association. My suggestion, however, has not fulfilled my anticipation, for, on comparing the number of additional names placed on the Dentists' Register during the year with the additions to our own roll, there appears to me to be at least one fourth of these young men who are still wandering outside our fold, and, whilst recognising the good work of rescue which our secretaries of Branches have done and are doing for the Association amongst these erring ones, I think perhaps the missionary spirit is not so developed and strong in the general body of members as it might be. If we were all individually to make it a part of our work and duty to induce the younger men to join the Association, this small proportion of non-members to which I have referred would soon disappear, whilst the Association, as well as the members, would be equally enriched.

W. HERN.

Mr. HERN hoped the members would endorse the sanction he had from the Representative Board that morning to invest the reserve fund, which was on deposit at the bankers, in a trust security.

Mr. BRUNTON proposed the adoption of the Report, which was seconded by Mr. WOODRUFF.

Mr. W. BOOTH PEARSALL said before the resolution was put to the meeting he should like to make a few remarks. The Report referred to the Journal account as not being satisfactory, and he should like to know whether that was going to continue, because there was a large sum of money spent on the Journal in the year, and it was not a popular undertaking. Whose fault was that? It seemed to him that the gentlemen managing the Journal were not in touch with the gentlemen outside of it at all. There were a good many things which might be done in the Journal, and the want of a good journal was seen in the establishment of some other journals within the last year. To his mind, the Journal had not been properly managed for a long time. The proper names of members were not properly spelt, and he thought the sub-editor or editor might read the pages and see that the mistakes were corrected from the Members' List. If he were to bring forward all the faults of the Journal he should have a list as long as Leporellos in Don Giovanni. He could not go into all the questions. It was well known that there were many typographical blunders in the Journal. He begged to read the quotation of a mixed metaphor in the last leading article of the Journal: "For years the Home Office must have been aware, through its inspectors and others, of the causes, and means of prevention, of the disease, *but only now is the veil of obscurity which concealed the habits of the poor being gently raised, and the cloak of indifference laid* *aside, for the armour of investigation.*" He thought the reader must have been sleepy when he passed it. He thought the Journal Committee wanted new blood in it. It seemed to him that the *amateurs* who managed it, in spite of their great good-will and heavy sacrifice, were not entitled to be trusted with the management. Men who had some originality might with advantage be invited to supply in the course of the year original articles. The medical journals, long before their publication, announced a list of men who were to contribute, and that was a thing that might be done in the Journal. It was the business of the Publishing Committee to find out men who could contribute efficient papers. He thought the editor might safely alter the wording of some of the papers, as they were not always in very clear and precise English. Anybody who sent in a paper would be grateful to have any little defects of that sort pointed out and remedied, because it was not always pleasant to have defective papers published. He wished to have his remarks brought under the notice of the Publishing Committee. He would like also to see that some men not living in London had something to do with the Publishing Committee. It appeared that everything connected with the work had to be done in London, but the Association wanted men outside London, and he thought the more they were interested in the advancement of the Association, and the more thoroughly they secured the help of the men who were outside London, the better it would be for the Journal. He was sure every member must feel there was a want of a good Journal, and if a little more enterprise was shown he thought the Journal might be made a great success. He had the opportunity of talking last October with a gentleman who filed the dental journals of the world, and had a large knowledge of what was going on in the world of dentistry, and he assured him that the Journal was one of the few journals whose articles were not translated into foreign languages. That was a hard statement to make, and it humbled his pride as a British subject to think the Journal was treated in that way by the foreign press. Every encouragement should be given to have the very best of the British dentists contributing to the Journal. He believed if the experiment was made of inviting even half-a-dozen to contribute papers—papers not necessarily read before Branches—it would be of great benefit. Anyone approaching the Committee was always referred to some one else, and there seemed a difficulty in getting at the Committee because they had lost touch with the men outside it and did not know what was going on. He should like, with the permission of the meeting, to have an opportunity, without making a disturbance or creating any ill-will, of inspecting the accounts relating to the losses of the Journal, and to put matters into a better way. From what he had read in the Journal it seemed to him that those connected with it were not intimately acquainted with publishing work. He was assured by good authority that, if the Journal was properly conducted, the advertisements ought to pay the entire cost of the printing. Instead of that, the printing was done at a loss. There were other journals not so influentially backed which were able in the course of the year to pay; but the Journal, in which the greatest bulk of the matter cost practically nothing, did not pay, and nobody else could be blamed except the Committee.

Mr. SMITH TURNER asked whether it was desirable to make money out of the Journal.

Mr. W. BOOTH PEARSALL said he thought it was; it ought not, at any rate, to be conducted at a loss. He thought the members would all be very proud if money was made out of it.

A MEMBER pointed out that the *British Medical Journal* made money.

Mr. PEARSALL asked the permission of the meeting to allow him access to the accounts.

The PRESIDENT said the Representative Board had considered the matter that morning, and any member was at liberty to inspect such accounts as the Treasurer had in his possession, at the convenience of the Treasurer.

Mr. WOODS (Liverpool) agreed with the remarks of the last speaker. The Liverpool Odontological Society had a very strong wish that their papers should be published in the JOURNAL OF THE BRITISH DENTAL ASSOCIATION. The Committee was approached on that point, but no satisfaction was obtained. There was another part of the Journal which he thought perhaps might be improved, but it was a matter which was due to no fault of the editor or those who had charge of the paper, but was the fault of the members themselves. He thought it would be very helpful if the correspondence department was made a great deal fuller. There were a great many subjects which might be discussed with benefit, and the correspondence department might help to mould dental opinion in a way in which it was not at present moulded. All the opinions seemed to come from London, but if provincial members would only write to the Journal more and air their views it would help to form an opinion which would be more representative of dentists generally than that which was at present expressed in the Journal.

Mr. UNDERWOOD said that as chairman of that retiring body, the Publishing Committee, he wished to make some reply to what his old friend Mr. Pearsall had said. He believed that all Mr. Booth Pearsall's remarks had been made with a *bonâ-fide* desire to benefit the Journal of the Association, but he could not help thinking that Mr. Pearsall must have had another thought—it must have been in his mind that the Publishing Committee of the Association was such a modest and retiring body that it had never attempted to blow its own trumpet, and he was resolved to give it the opportunity. But with regard to the details of the criticism, Mr. Booth Pearsall said, first of all, that the Journal was not properly read. As a matter of fact, it was very carefully read. It was read first of all by the most accomplished experts at the printing office; it was read word for word by the sub-editor. All its editorial matter was read by himself, and every editorial expression of opinion was sent to every member of the Publishing Committee to be considered. With regard to the reading of all matter coming from the Councils of Branches, that was necessarily unwise for the central body to trust entirely to themselves, and because of that every such proof was sent to the Secretary of the Branch, and he read it for the correction of names, because names, as the members were well aware, were not always legibly written, and it was often impossible for the sub-editor to discover what some of those names were. As a rule, the Secretary of the Branch knew them and corrected them satisfactorily. He took the opportunity of thanking the Secretaries and all the members generally for their cordial assistance in every respect in regard to the matter. He hoped the impression would not get abroad that the Journal was conducted by a party of amateurs.

Mr. Booth Pearsall said it certainly was.

Mr. Underwood said it certainly was not. He had been nineteen years connected with the Journal, and he had been reading proofs all that time. He did not receive pay for it, although he did at one time when he was sub-editor. This was the only difference between amateur and professional so far as proof reading went, and it was read by the best professional readers that could be obtained. He believed the Journal was in the hands of the best publishing firm that could possibly be found. They had already raised the advertisement columns to such an extent that it was a fact that there was hardly a parallel of a journal with so small a circulation having such a large number of paying advertisements. It was very difficult to get paying advertisements in a journal with a small circulation, and it was still more difficult when the peculiar nature of the Journal was taken into consideration. It must be remembered that there was no desire or intention to compete with the other journals referred to, because the particular position of the Journal was to endeavour, as far as possible, to be the mouthpiece of the Association. The other journals were the mouthpieces either of trade firms or other people who might be unknown, and they were not tied by any sense of responsibility beyond their own free will. They could take what advertisements they pleased and they could leave what they chose, and they could express the opinions that suited them for the moment.

The Journal, on the contrary, had to be very guarded in the expression of an opinion, because it was a constant fear that opinions might be expressed which did not suit the majority of members. The Committee were very much hampered in the matter of advertisements, because they were obliged to refuse certain advertisements the tone and form of which would not be suitable to the dignity of the Association, although perfectly suitable to the pages of a trade journal. In that way there was a difficulty, but, in spite of that difficulty, the advertisement column continued to increase, and the advertisements were not bogus ones. Mr. Booth Pearsall had said new blood was required, and that original articles ought to be invited. He thought he might take it upon himself as Chairman of the Committee to invite such original articles, but he would not be so invidious as to pick out one or two gentlemen and ask them to write them. If original articles were laid before the Publishing Committee which made an addition to knowledge and were of advantage to the pages of the Journal, they would never be refused. The Committee were only too glad to print them, and only too glad to receive correspondence. Mr. Booth Pearsall was asking for two irreconcilable things—more matter and, at the same time, less expense. Those two things could not be done together. The Committee had contrived after immense deliberation to produce a journal which, by a slight increase of size, contained more matter without a proportionately greater increase of weight. The Journal was not so much over postage as it would be if it had been thickened—in fact, a gain had been made, because it had been found, time after time, necessary to postpone the printing of good matter because pages would not contain it without running over the postage. It might be present to the minds of many of the members that frequently what was not good matter, or, at any rate, matter that had no immediate necessity, was put into the Journal. That was due to the exigencies of printing. Experts would know that, at the last moment, there might be three-quarters of a page perhaps to fill which could not possibly be filled with a paper nine pages long. It was necessary that the Journal should be always published to time, and it followed that a reserve of matter, which was not exactly important or of pressing necessity, had to be kept for the purpose of filling up the small gaps. That accounted for the appearance of matter which perhaps might have been laid aside for more important articles, had the space not been so small. The Journal could not be made a procrustean bed, and the Committee were obliged to submit to the exigencies of circumstances. With regard to the last question, whether the Journal should be produced at a loss, it was one of the great endeavours of the Committee that it should not, and for that reason they had struggled for twenty years until at last they had managed to get a balance to the good. It was quite right to make money out of the Journal, and the only question was, what was to be done with it? They did not want to hoard it, and they therefore used the balance—perhaps a little freely—in trying to improve the appearance of the Journal, to give plenty of good illustrations, and to give more room for the communications of the members, to translate good foreign matter, and generally to make the Journal such that, when it lay by the side of other journals on the table, it looked a handsome volume. In that matter he must acknowledge the suggestions courteously and kindly given by a gentlemen not in London, but in Leeds—Mr. Brunton. He would like to issue a second invitation; so long as he had the honour to hold what he considered to be the onerous post of Chairman of the Publishing Committee, he begged all and any of the members not to nurse in their minds a notion of faults that might be explained, or, if they were really faults, might be remedied, but he would ask all to accept an invitation from him to call upon him when such things were in their minds, and he could assure them that they would receive the most careful consideration—the consideration he had always given to every suggestion made to him. If it was at all possible the matter would be put right, and if it was impossible the impossibility would be laid before the member to the best of his ability. He could not sit down without thanking Mr. Pearsall for having given him that opportunity of doing what he knew Mr. Pearsall wanted him to do—just for once to blow the trumpet of the Committee, and then retire once again into his modest seclusion.

Mr. W. BOOTH PEARSALL said he sent an original paper last year to the Journal, and by the same post sent to two foreign journals. The editors of the foreign journals by the next mail sent him their thanks and acceptance of his paper. He never heard from the British Dental Association Journal.

The CHAIRMAN ruled Mr. Pearsall out of order in making a second speech, and, on the motion for the adoption of the Report being put, it was carried.

Mr. BRUNTON declared that the advice did not come from him, but was suggested by Mr. Gaddes.

REPORT OF HONORARY SECRETARY.

On the motion of Mr. Beadnell Gill the following report of the Honorary Secretary was taken as read:—

MR. PRESIDENT AND GENTLEMEN,—I have much pleasure in laying before you the Nineteenth Annual Report of our Association. During the year that has passed there have been four meetings of the Representative Board and six meetings of the Business Committee. It will be observed that these numbers are fewer than usual, but we have endeavoured to embody as much business as possible in the transactions of each sitting; and, although this may have prolonged the time of the meeting, it has saved needless repetitions of long and wearisome journeys to gentlemen who live at a distance.

The record of prosecutions under the Dentists Act for the year numbers two cases. Both were taken up on issues of a distinct character, and in both we were successful; but as the cases have been fully reported in the Journal, they need not now be repeated. Ten other detailed cases were reported to the Business Committee during the year. In five of these apologies were received and the offending announcements withdrawn after due warning had been given. One case was sent up by a Scottish legal official, asking for an opinion from the Committee on a question of title in connection with Section 3 of the Dentists Act. Another case disappeared under the influence of proceedings in the Bankruptcy Court, and the remaining three cases did not come within the scope of the Dentists Act.

The discussion which was raised at our last Annual Meeting concerning the action of a member of the Representative Board who had supported an application for registration made by a foreign dental practitioner, led to the matter being very thoroughly investigated by the Business Committee, after reference from the Board. The member in question, according to his promise, laid all the facts of the case before a special meeting called to hear him. Briefly, the result was that he expressed his regret for having acted contrary to the declared policy of the British Dental Association in reference to dental registration, and the Business Committee recommended the Representative Board to receive his apology and to close the matter.

The effort made by the Association to secure the appointment of an Inspector of Dental Examinations has resulted in a curriculum having been formulated by the Medical Council and accepted by the schools, and so in the meantime we may hope to see a fair amount of uniformity in dental education throughout the kingdom.

The nebulous condition of the New University of London has prevented the Association from doing more than direct the attention of the dental schools of the Metropolis to the desirability of securing some recognition in the Medical Faculty. And, as the question is largely a metropolitan one, the Business Committee have refrained from taking any more definite action.

In view of an attempt to amend the Medical Act being initiated by the British Medical Association, a small sub-committee was appointed to watch and consider the influence which any proposed legislation might have on the Dentists Act. So far as the Committee have been able to ascertain, the proposed alterations are not likely to have an adverse effect on our present position, but may very probably have an influence in our favour.

The Lord Chancellor's Bill now before Parliament is a matter of very considerable importance to the medical and dental professions, and points to the remedy of a great and crying evil brought about by the Companies Acts. It may be within your recollection that we endeavoured to get some protection from this injustice by the insertion of a qualifying clause in the "Companies Acts Amendment Bill," but failed. The Lord Chancellor's Bill, if it become law, will afford us the relief we require and materially strengthen our position in defending the principal provisions of the Dentists Act.

The Schools' Committee has now ceased to exist. At our last Annual Meeting a resolution was passed that its reports should be collated; as, however, some of them were out of print there has been some delay in publishing. They are now in type, and after being finally edited will be placed at the disposal of members. The recently established School Dentists' Society will no doubt provide valuable additions to this all-important part of dental literature in the future.

The members of the Association have been put in possession of the resolution of the Medical Council regarding the administration of anæsthetics by medical men for unqualified dental practitioners, and we hope that its result may be satisfactory when its existence has become better known. The usual action of the Medical Council has been followed in reference to the "covering" edict of 1892, and after a period of six years its re-issue indicates a readiness of the Council to deal with offenders.

Such is the epitome of a year's work. In the course of the coming year the necessity for more united action may arise. Some of our members have already anticipated one of our wants, and have secured the support of certain Members of Parliament to the Lord Chancellor's Bill, and it is to be hoped that when the time comes all will be equally ready and equally successful.

W. B. PATERSON.

On the motion of Dr. WALKER, seconded by Mr. REDMAN, the Report was adopted.

ELECTION OF REPRESENTATIVE BOARD.

The PRESIDENT reported that the result of the ballot for the election of ten members for the Representative Board was as follows: —Messrs. W. Hern, W. E. Harding, L. Matheson, T. Gaddes, W. A. Hunt, W. R. Humby, J. H. Badcock, George Cunningham, J. Walker, and Walter Harrison.

ANNUAL MEETING, 1900.

The PRESIDENT said the next subject was the time and place and President of the Annual Meeting for 1900. It was a very close vote at the Board that morning, and an agreement was unable to be arrived at. There was an invitation from the Southern Counties Branch, and one from the Midland Counties Branch.

Mr. GADDES inquired whether the result of the voting at the Representative Board that morning was not that sixteen were in favour of the meeting being in Leeds, and fifteen in favour of its being at Brighton.

Mr. BREWARD NEALE rose to a point of order, and asked if it was right that the doings of the Representative Board should be stated in detail at the General Meeting. It was not of any importance on that occasion, but he took exception to it on general principles. He thought that a statement should be made by the President, and nothing be added further by a member of the Board.

The PRESIDENT said the only thing before the meeting was that the Representative Board was unable to agree as to the place of the

Annual Meeting, and that the matter had to be settled at the present meeting.

Dr. J. Walker proposed that the invitation of the Southern Counties Branch, to meet at Brighton in 1900, should be accepted; and also proposed that Mr. Redman be the next President. It had been stated in the discussion that morning that the next meeting but one would most probably be held in London, and the feeling of the Southern Counties Branch was that if that was held in London it would be something like a squeezed lemon. There had not been a meeting held in the Southern Counties since 1889, and a very hearty invitation had been made by the members of the Branch that the Association should meet in Brighton, and that Mr. Redman should be the next President.

Mr. Beadnell Gill seconded the proposition. He thought he was expressing the views of the members of the Southern Counties Branch in regretting very much the fact that on the last occasion two members who ought to have been present were not there at the time when the question came on. The one was unavoidably unable to attend, and the other was compelled to go away before the question was raised. He hoped the members of the Association would accept that as an explanation of what might appear as a half-hearted invitation on the part of the Southern Counties Branch. The Branch would only be too pleased if the Association would honour them with their presence at Brighton.

Mr. Gaddes had the honour to propose, on behalf of the Midland Branch, an amendment to the effect that the Association meeting next year should be held in Leeds. The grounds upon which the invitation was made were, broadly, that the Association had never met in Yorkshire; that it was invited to meet in Leeds, as the metropolis and commercial centre of the great West Riding of Yorkshire; and that as President a member was suggested who was distinguished and greatly honoured by the whole profession, viz., Mr. George Brunton. Not only was Leeds the commercial centre, but it was also a great centre of education, medical and scientific. It was the home of one of the Colleges affiliated with the Victoria University, and, through the kind offices of the authorities, ample accommodation and facilities would be afforded quite satisfactory to the majority of members for the holding of the meetings. Furthermore, he believed if the Association went to Leeds it would be a kind of "missionary enterprise." He believed he was not mentioning any secrets when he stated that matters were ripening in Leeds for the establishment of a Dental Department in connection with the Leeds Medical School, and if the Association went to Leeds he believed it would be largely instrumental in forming another centre of dental education affiliated with the Victoria University, as were the College at Manchester and the

College at Liverpool. Under those circumstances, he had great pleasure in asking the Association, on behalf of the Midland Counties Branch, to hold their next annual meeting in Leeds.

Mr. STOREY, in seconding the motion, urged upon the Association the desirability of going to Leeds. He could see that there was very much force in what Dr. Walker had said with regard to Brighton, but the fact remained that it did appear as if there were three meetings being held all together practically in London. Brighton was at no great distance from London, and to hold a meeting there in 1900, and another in London in 1901, would be to hold the meetings very close together. One great reason for asking the Association to meet at Leeds was to do honour to their friend Mr. Brunton. It was a happy thing that on the present occasion different Branches were anxious to have the meetings of the Association, and he was quite sure that, whatever place suited the convenience of the majority of the meeting, all members would loyally fall in with the matter.

Mr. RICHARDS, on behalf of the members of the Southern Counties Branch, pressed the Association to accept the invitation to meet at Brighton. It was ten years since a meeting had been held in the Southern Counties, and since that time two meetings had been held in the North, one at Manchester and another at Newcastle. As a Midland man himself he quite appreciated the kindness of the Midland Branch, but he also had a little of the pride of the northerner and did not care to accept too many invitations without also reciprocating the kindness by entertaining. Another point was that the Association had received a very hearty invitation to cross the Channel, and if the meeting was held in Brighton next year it would be convenient to members to cross the water and continue their journey and extend their holiday. The time of the meeting could easily be arranged, whether Whitsuntide or August, and if it met with the wishes of the members that the meeting should be in August to correspond with the meeting in Paris, any arrangement of that sort could be adopted.

Mr. BRUNTON asked the members in considering the question to leave him entirely out of the question.

Mr. F. V. RICHARDSON asked which invitation was sent in first.

The PRESIDENT said the Southern Counties by one day.

Mr. RICHARDSON said there had not been a meeting in the Southern Counties since 1889, and a meeting had never been held in Hampshire at all. Brighton was fixed upon because it was so easily accessible. In 1893 the Midland Branch had a meeting in Manchester, and a meeting had been held in Newcastle.

Mr. GADDES said he believed the meeting in Newcastle was not at the invitation of the Midland Branch.

The PRESIDENT said that the meeting in Manchester was in 1892, not 1893.

Mr. J. A. Fothergill said there was one consideration in choosing a place for the General Meeting which had not been mentioned, and that was in which district would the Association be most likely to interest people in its work? He should very much like to go to Brighton, and he hoped that the Association would go there some day with Mr. Redman as President, but he thought that a populous county like Yorkshire was a place where the Association would be likely to increase its membership. Leeds was a very large town and was surrounded by large towns which required that "missionary spirit" which had been alluded to.

The amendment proposed by Mr. Gaddes, seconded by Mr. Storey, "That the meeting be held in Leeds, and that Mr. Brunton be the President," was then put and carried by a large majority. The date of the meeting was left to be settled afterwards.

At this point of the meeting the President had to leave, in order to be present at the examination of the College of Surgeons that evening. In his absence Mr. J. Smith Turner occupied the chair.

Motion by Mr. F. J. Bennett.

Mr. F. J. Bennett then moved: "That this meeting approve of the principle of grants in aid of dental research, but leave it to the Representative Board to decide on the best means of carrying this principle into effect." He said he thought he could shorten what he had to say by reading a letter which he had written in the current number of the Journal. He therefore read the following extracts from that letter:—"It has been felt by some that the time has now arrived, and the dignity of our calling has reached a stage, when some steps should be taken to organise and encourage original research in dental disease. The type of enquiry we especially aim at encouraging is the short and exact record of facts and experiments, rather than the working out of elaborate speculations and theories. We desire to absorb into this work a few selected men with qualities and gifts for investigation, and to offer them an inducement to devote some of their time to the work of research, and to encourage the habit of enquiry and experiment whilst the faculties and energies are still at their best. The remarkable success which has resulted from the system adopted by the British Medical Association, of furnishing small annual grants in aid of research in various branches of medicine and surgery, suggests the idea that a large accession of knowledge would result from a similar application of the principle to the requirements of dental science. It not infrequently happens that for some few years after a long and expensive dental education, men are compelled, by sheer force of circumstances, to put aside the additional expense involved in the conduct of investigations which they would have otherwise been willing enough to undertake. It is therefore suggested that small grants for the purpose either of defraying the expenses of investigation in some public laboratory, or for the purchase or loan of instruments of research, should be made out of the funds of the British Dental Association. The results and records of all work in connection with these grants would, of course, become the property of the Association."

Mr. Hopewell Smith seconded the motion. He took it that it would be extremely valuable to young qualified men who had leisure on their hands, to receive a small grant to enable them to continue their studies at some public institution. On Monday the Microscopical Section were having a paper from a gentleman who had reaped much reward from a grant from the British Medical Association, and he thought it would be a grand thing for the British Dental Association to have such a fund for research work.

Mr. Gaddes supported the proposition, and said he should be glad if another Society which had more funds to spare than the British Dental Association, and whose sole object was science, would take the initiative in the matter, or at all events follow in the steps of the Dental Association, which was a relatively poor Association compared with the wealthy Odontological Society.

The President said Mr. Gaddes was *ultra vires*. The Association had no right to discuss other Societies, although he quite agreed with what Mr. Gaddes said.

Mr. Gaddes said he would then simply support the proposition, and, in doing so, he hoped it would prove a lesson to a more wealthy Societies.

Mr. D. Headridge thought much good might be obtained by the Representative Board appealing to the Medical Council to allow Clause 32 of our Act to be exercised a little more on behalf of the Association. That clause provided that money might be devoted to research work in dental surgery, or towards the promotion of learning and education in connection with dentistry. He hoped the Representative Board would have the Medical Council in mind as one of the organisations to which an appeal could be made.

The President said it was not forgotten.

The resolution was carried unanimously.

A motion by Mr. George Cunningham, with reference to a petition to the University of London Commissioners, was postponed, and the meeting adjourned to the afternoon of Tuesday.

Saturday, May 20.

General Meeting.

A General Meeting was held in the Town Hall in the afternoon of Saturday, May 20, for the purpose of reading and discussing papers dealing with technical training. Mr. Breward Neale (Vice-President of the Representative Board) was in the chair.

Mr. **Smith Turner** read a paper on "Training in Mechanical Dentistry."[1]

Mr. F. J. **Bennett**, in thanking Mr. Smith Turner for the paper he had brought forward, was reminded of his teaching at the Dental Hospital. One part of the course consisted in carving out those very blocks. A piece of vulcanite was handed to each of the students, who was requested to carve out some teeth. A fellow student who was sitting next to him had been rather unfortunate in his attempt, and when Mr. Smith Turner came round he looked at the piece of carving, and turned to the student and said, "Well, Mr. So-and-So, you might fall down and worship this piece of work." The student looked rather straight down the nose and said, "Why, Mr. Turner?" "Well," said Mr. Smith Turner, "because it is like nothing in heaven above, or in the earth beneath, or in the waters under the earth." That was the ironical and kindly way in which they were taught.

On the suggestion of the **Hon. Secretary**, Mr. Booth Pearsall's paper was read next, so that the discussion might be taken on both papers.

Mr. W. **Booth Pearsall** then read his paper on "Technical Training in American Dental Schools."[2]

A paper was next read by Mr. **Sidney Spokes** on "The Teeth of the Young," which will be published in a future number of the Journal.

Mr. **David Headridge** said the members were all very much indebted to Mr. Booth Pearsall for bringing before them such an admirable display of interesting technical work for their instruction, and perhaps for their profit. It served of itself as an argument in favour of what was suggested, the advisability of establishing in connection with the Association or otherwise a Committee of Teachers interested in those questions, who could discuss educational methods. He, however, joined issue with Mr. Pearsall on the suggestion that men in England were behindhand. He was proud that in Manchester, at all events, something had been done to forward a systematic course of training both in mechanical and operative dentistry in the initiatory period of a student's curriculum. Leaving aside the operative question, which had for over seven years comprised the preparation of sections, fillings, &c., before the student is allowed to operate on the patient, and dealing with the mechanical, there had been initiated a course that was very carefully thought out by the officers connected with the hospital and upon which several students were working, a course that was found to develop the qualities that were essential to the nighest degree. Something of the nature of what Mr. Smith Turner had alluded to was pursued at the hospital in Manchester. There the demonstrator gave instructions to the pupils in all the materials used in mechanical dentistry, how they were made, their properties, and so on. He further took them through graded courses of work in regard to the preparation of casts, striking of plates, making of impression trays, and all that was included in prosthetic work. They were taken through in a definite and systematic manner.

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[1] Printed on p. 294 as an Original Communication.

[2] An abstract of this paper is given on another page of the Journal.

Mr. Beadnell Gill said that in his opinion it was not necessary for a man to absolutely go through a large amount of peculiar training outside dentistry to become a good mechanical dentist. That was unnecessary under the present high pressure conditions. He thought if a man got good sound practical training in the mechanical work actually required of a dentist, he was not necessarily obliged to learn the whole of the manufacture of his instruments; if he was going to do that there would be the difficulty of crowding more and more work into a limited period of time. The question was not entirely a new one, as even he had brought it forward ten or twelve years ago. The point to his mind was, whether the present students really got as good mechanical training as the men who had passed away. He thought that they were paying so much attention to the surgical and medical training, that not enough time was left for the more practical work. He was more and more convinced the older he grew that the man who was going to be a good, useful and successful dentist in after life was the man who had put his time in honestly and industriously under his three years' apprenticeship. The chief necessity of laying stress upon that portion of the curriculum was the fact that for very many years the tendency had been more and more to evade mechanical training and fill up the time with this that and the other condition which, in after life, no dentist was called upon to treat. With regard to the question of mechanical training in America, he agreed with Mr. Pearsall that at the present day the Americans were paying a little more attention to the point. For very many years in America they had been giving all their attention to the surgical work, and the result had been that many dentists were turned out very good operators, but very bad mechanics. This has been recognised by the leaders of the profession in the States, and they have put their shoulders to the wheel and are doing their very utmost to alter the state of affairs. English dentists are getting more and more inclined to leave the work entirely in the hands of the mechanic, and they were consequently absolutely at the mercy of the mechanic, and for that reason he was quite prepared to support Mr. Booth Pearsall in his ideas that more mechanical training and more technical training should be given in the training of the students before they were allowed to pass their examinations.

The Chairman (Mr. Breward Neale) said he should like to say from knowledge gained during many years, that the most defective part of a dental student's training was in his mechanical work and the reason was that it was not systematic. A man took pupils, but there were very few who devoted the time that his friend Mr.

Smith Turner did to their training. He looked his own pupils up from time to time and they seemed to go on very fairly, and they could do good work; but one or two of them had not been as satisfactory as they might have been if he had systematically examined them. He thought dental mechanics was the weakest point. There was another point, viz.:—Whether the examination in dental mechanics was sufficiently stringent, and whether, if that part of the examination was made more searching it would not stimulate gentlemen who took pupils and also make guardians and parents more careful in selecting the men to whom they sent their boys as pupils. He thought it was a very important thing that those who took pupils should bear in mind—that it was not only the actual training they received, but that absolutely their lives might be influenced very seriously by their not having sufficient systematic work to do. There were many men who started well, and, because things were not arranged for them to go on day by day they got into bad habits, and bad habits might spoil, and had spoilt to his knowledge, more than one good man. He considered Mr. Booth Pearsall's paper a very interesting one, and the specimens he had produced were also very interesting. On behalf of the members he should like to thank him and ask him to thank the American gentlemen who had sent over the specimens. It did not take many minutes to look at them, but they involved a considerable amount of time and thought in preparing and arranging. He thought some of the suggestions Mr. Booth Pearsall had made were well worthy of consideration, and he should certainly, at his leisure, give them consideration, and he hoped his colleagues in Birmingham would also go into the subject thoroughly and see what could be done.

Mr. **Smith Turner**, being called upon, said there did not seem very much in common between Mr. Booth Pearsall's paper and his. The few remarks he made referred entirely to the initiatory process in teaching, and in Mr. Booth Pearsall's paper that was mixed up with all that dentistry could do in the shape of dentures and plugging teeth. Shakespeare had said that comparisons were odious, and when a paper consisted of a long comparison of the dentistry of one country to the depreciation of the dentistry of his country, he certainly could not enter into the discussion of it. He might say for the information of some gentlemen that there was now a very strict examination in dental mechanics, and a student was not likely to get through unless he was thoroughly efficient. Certainly, if any of his pupils or any of his students showed him a specimen of their work like some of the work he saw in the cases Mr. Booth Pearsall had exhibited, they would get a warm reception. Many of the specimens were what he had referred to as "impossible dentures."

Mr. **Reinhardt** thought both papers were really on the same lines, dealing with simple manual training and manual dexterity. Mr. Smith Turner modestly claimed that he was only teaching a man the initiatory steps, but he was making an operator of that man, and a first-class gold filler. In the striking up of a plate he was training the pupils ultimately to become very good operators. The specimens showed what could be done by systematic training. He wished Mr. Booth Pearsall had followed up the system and shown how it was completed. It was true there were a lot of specimens which were not possible in the mouth, but they showed that the young men who had done them had their hearts in the work, and were trying to do their very best.

Mr. J. C. STOREY said a very valuable suggestion had been made that afternoon which might bear practical results, and that was how there might be some arrangement for teachers to compare methods. He remembered a little while ago Mr. Brunton brought some very admirable carved specimens of Japanese work done in wood; now Mr. Pearsall introduced American handicraft. It was essential that the faction business should be destroyed, and that we should hear no more of American or English dentistry, but that we should aim at the best in all lands and acclaim *that* universal dentistry. He might not have spent so much personal time in the teaching of pupils, perhaps, as he ought to have done, but he had taken care to do his very utmost that those who were engaged in the work-room should let the youths have the very best opportunity, and he was inclined to say with very considerable advantage, as the men he had sent out had always been very successful. There was a good deal to be said for what Mr. Smith Turner remarked with regard to direct work on the very things the boys were coming in contact with by and by, but he thought for the matter of the first six months greater advantage would be gained by letting them attend the technical schools. They could attend there half the day and spend the other half in the work-room. After a while the boys were even able to teach dentists a thing or two which they got hold of at the technical schools. The question was how could the boys be best trained. The matter would come up in one way or another; shirk it how they might, it would soon be a question of whether the boys were to be trained in the work-rooms or in the schools. This was a matter that had to be faced. He emphasised the importance of some conference being held, by which the teachers of the various schools could get into touch with one another and come to some definite method. If that were done, then advantage might be realised from the present discussion.

Mr. J. A. WOODS, in answer to Mr. Storey, thought it might be a very good thing to have an Educational Section of the Association in the same way that there was a Microscopical Section.

Mr. David Hepburn, who rose at the invitation of the Chairman, said that he had been detained elsewhere, and consequently was in the unfortunate position of not having heard the two papers which had created so highly interesting a discussion. He therefore felt handicapped in saying anything on the subject, but from a hint which had been given him it appeared that the argument of Mr. Booth Pearsall's paper was, that the American schools were far in advance of, in the matter of training in dental mechanics, the schools in this country. This, he said, was a question which could hardly be discussed. It would lead to no good, the mere fact as to whether they were better or worse than their neighbours mattered not. They could, however, look to themselves, and he felt that those who had this matter at heart and had taken special interest in this particular department of training in dental mechanics, must feel that they had yet a very great deal to accomplish before they could consider that their students—those who were becoming the dentists of the future—would have the means of a sufficiently high education in this particular branch of their work. He said he might almost lay claim to having been born in a work-room, for his father was the original Lecturer on Dental Mechanics in this country, and previously to that appointment he had been in the habit of training pupils privately, many of whom, in after years, attained high positions in the dental profession. Consequently, his (Mr. David Hepburn's) notions were in a sense, old fashioned, and for a long time he believed that in order to master the art of dental mechanics the one thing to do was to enter a workroom and there receive training. He continued in that belief until one day he found himself suddenly the Lecturer on Dental Mechanics at the Medical School of the Dental Hospital of London. He there found many students came under his notice lamentably deficient in the mechanical department of their work, and so he, along with the Dean (Mr. Morton Smale) and some others, set themselves to work to see what could be done in their own particular school to improve this state of affairs. They started, in the face of the prejudice of years, a department in dental mechanics which, so far, had been successful. But, on looking back, it appeared to him that it was not a very difficult thing to teach a man the art of soldering, hammering up of plates, packing vulcanite dentures and so forth, but that it was an immensely difficult thing to create in a student that particular kind of dental mind which would enable him to appreciate and recognise the difficulties of cases which presented themselves before him for treatment. Teach a man to make the most beautiful specimens, let him learn all that, but when that was done he had learned but very little. There was something more to be acquired, and the difficulty seemed to resolve itself into this, that when a man had undergone a certain amount of mechanical training, work which he might not even be called upon in after years to do himself, he should have the opportunity of seeing, in the patients themselves, the innumerable difficulties and peculiarities which await the dentist in daily practice. The student should see models taken, plates applied to the mouth, and apply them himself, and gradually be taught by actual practice, under good supervision, to recognise those peculiar allowances and endless things which have to be considered before a comfortable denture can be fitted to the mouth of a patient. He believed that this could be best done by having departments in dental mechanics attached to the schools of dental surgery, where a sufficient supply of patients was at command. Some of the schools had these departments now, and he believed in a very short time they would develop. He would not put one school before another, but he might say that in the school in which he had had the pleasure of teaching, a system was gradually developing of training students, not only to perfect their mechanical *work*, but to understand the treatment of the mouth from the mechanical point of view. Mr. Hepburn said he had been struck again and again in the course of time, sometimes when cases had been brought to him for consultation, how many men there were who passed through their professional lives without ever acquring that particular dental mind—he used that expression for want of a better—which he had already referred to. They could not recognise or appreciate the difficulties or niceties of a case. He felt sure if this faculty could be acquired many of the difficulties of practice would tend largely to fade away, and he felt convinced that much might be done in this respect by having well organised schools attached to the hospitals, where there were innumerable patients, and where there were men of experience ready and willing to personally supervise cases with the students under them.

Mr. STORER BENNETT thought there was no doubt the subject was one which Mr. Pearsall had approached with some bias. It so happened that he (Mr. Storer Bennett) was surgeon at the Dental Hospital of London for a good many years, and he could not recollect that in all those years Mr. Pearsall ever honoured the hospital with a visit.

Mr. BOOTH PEARSALL said he went several times.

Mr. STORER BENNETT said it was quite true he was only a surgeon of the hospital on one day a week, and it may have been the fate of some of his colleagues to be fortunate enough to welcome Mr. Pearsall as a visitor at that institution. But had Mr. Pearsall ever honoured the hospital with a visit he thought he would have been a little surprised to see there was rather more system in the method of teaching in that school than he gave credit for. He presumed Mr. Pearsall's remarks applied not merely to Leicester Square but to the teaching of the whole country. He could only speak of that which he knew, and he only knew exactly what was done at Leicester Square. Some of the fillings shown by Mr. Booth Pearsall were such as students had been taught to do at the Dental Hospital of London, sometimes in blocks of ivory and afterwards in teeth set in plaster of Paris. The haphazard method of teaching that Mr. Booth Pearsall imagined was adopted in Leicester Square had been very much more systematised than he gave credit for. He (Mr. Storer Bennett) would not for a moment add a word that would be likely to be considered controversial in the matter. All he wished to do was to try, if he could, to produce concord where discord seemed likely to reign, and to say that he was sure, although Mr. Pearsall had said somewhat bitter things with regard to English dentists and some very complimentary things with regard to their neighbours across the Atlantic, there was good work done on that side, but he was convinced there was also a great deal of good on this. It was quite true we had things to learn in this country, but he did not think that all the good things were done on the other side of the Atlantic.

Mr. RUSHTON deprecated the geographical limitation of science and thought the sooner they were "dropped" the better. With regard to the hospital with which he had the honour to be connected, the National Dental Hospital, they had, in a similar manner to their sister-school in Leicester Square, taken all their students through the preliminary course such as had been mentioned by Mr. Storer Bennett, and the excellent points that Mr. Pearsall had referred to had been already adopted there. That the teaching was capable of improvement he quite admitted, but he thought they were on the high road to turning out a better class of dentists all round. The trend of the discussion had shown to a certain extent that the apprenticeship system had been somewhat unsatisfactory. Whether it would go the way of the apprenticeship system in medicine was, of course, still "on the knees of the gods;" but its success very much depended, as had been said, with the man to whom a boy was articled. To article a boy to a man who did not give him what he ought to give him was, of course, handicapping the youth very much. He did not see why the practitioner should benefit by that boy's services, pocket his premium, and then turn out an inefficient man. He did not see why the schools should be called upon to add to their many labours by supplementing that man's teaching. The apprenticeship system, it seemed to him, ought either to be done away with altogether, or some check should be placed upon the instruction a boy had to receive from his master by instituting some sort of preliminary examination before he was allowed to go on with the rest of his curriculum. In that case parents would be more careful with whom they placed their boys, and practitioners would be more careful with regard to the instruction they imparted to them.

Mr. A. E. **Baker** said he was in the peculiar position of being able to speak on both sides of the question. He had been trained in mechanics as a pupil for more than three years, and also had had the privilege of working in the Mechanical Laboratory of the University of Pennsylvania (dental department), for a period of two months. The result of his investigations and experience there was, that he was not particularly struck by the superiority of the methods of teaching mechanical dentistry in that University as compared with those of this country.

A dental student joined the University at the start, and was put through his whole course *in three years.* He had to spend his first year in the mechanical laboratory, and his other two years in mostly doing operative work. Mr. Baker contended that three years was not sufficient time in which to learn all the details that a dental student should know. If he was properly taught in the three years' apprenticeship and was given plenty of work to do, a man of average intelligence and industry must learn more in three years than at this University in one year.

Whilst there each man had to make and bring up for inspection certain pieces of work such as had been shown by Mr. Booth Pearsall. There were small dentures both in vulcanite and plate work, the plate work was mostly done in brass and the teeth soldered on with silver solder. So much of that work had to be done and then brought up at the final (D.D.S.) examination. If it was well done it was passed. He was speaking of three or four years ago; doubtless alterations has since occurred, but, so far as he remembered, there was then no mechanics' examination for the D.D.S. degree. Mr. Baker thought this system of teaching disadvantageous, as under it the student had not the satisfaction of knowing that his work fitted the mouth well. For example, the men at the University were given for their big piece of work an edentulous upper model and they had to strike up a big brass plate for that upper. Then the centre piece was cut out, a suction chamber made and soldered in separately. Then they had to fix a piece of brass plate all round the outside edge of the plate where it reached the sulcus, to make a recurved border. Upon this gum teeth were fitted down all round the arch, and soldered on with silver solder. It was a heavy piece of work and many failures resulted at the outset, but were overcome by perseverance.

With regard to the enthusiasm of the American students, Mr. Baker could quite bear out what Mr. Booth Pearsall had said. At the University of Pennsylvania there was a very large laboratory, with many lathes and benches, mostly occupied. The students' contact with each other certainly did stimulate their enthusiasm. One met there students from all over the world, *e.g.*, Australia, New Zealand, France, Italy, Switzerland, as well as from the different American States, and contact with each other stimulated them to a surprising and very encouraging extent. He tried to inspire the same sentiment in his own students. But personally he preferred working in the ordinary workroom quietly, as the articled pupil did. Work could be done much more carefully and neatly, and when doing one particular kind, *e.g.*, in using the continuous gum furnace, there was not the waiting about, nor the general rush and hurry which went on where large bodies of men were collected together.

Dealing with the correct teaching of dental mechanics, he thought this would be insured by the new examination which would come on at the end of the first six months' hospital practice. If a man could not pass his mechanics examination he would have to go back until he was able.

As regards the methods of filling and crowning, specimens illustrating which had been handed round, similar teaching had been in vogue at Guy's Hospital ever since he had been connected with that institution—about eight years—and if Mr. Booth Pearsall would pay them a visit he could see specimens of each put up as examples for their dental students to imitate.

At Guy's a probationary course was compulsory, each student having to make a number of crowns and fillings out of the mouth, which must be passed and his form filled in before being allowed to operate on patients. There was also systematic instruction in mechanical dentistry supplementing that received before joining the hospital.

Mr. Baker regretted that his two colleagues responsible for this department were not present at the meeting.

Dr. Walker said he did not think it would be fair, either to themselves or to his friend Mr. Pearsall, if members remained silent. Mr. Pearsall had tried to stimulate to exertion every dental man present, and he thanked him for the stimulus that he had given. It might be a comfort to Mr. Pearsall to know that dentists in England were not asleep; in fact, they were very wide awake, and were doing their very utmost to provide opportunities for students to learn every department that could be comprised in dental surgery. He thought, himself, they were trying to press too much teaching into too short a time. It took him five years before he was considered fit to become an assistant to Arnold Rogers. How was it possible to expect thoroughly good work in eighteen months? In the Dental Hospital now being built in Leicester Square they were going to try to have the most systematic teaching possible in mechanical dentistry, and he thanked Mr. Storer Bennett for saying that systematic teaching was now being carried on on a small scale, because the accommodation was unequal for a very large school.

Mr. Coxon did not believe it was possible to teach any boy in a hospital with the same efficiency that he could be taught in an ordinary work-room. In an ordinary work-room the pupil came in contact with cases that had to be made to fit the mouth, and used the same materials that he would use in after life to make the dentures with. It was impossible in a hospital to use precious metals to any extent, or as often as they would be used in private practice, therefore the student was unable to get the same teaching in plate work as he would with a private practitioner. There was no argument in saying that the private practitioner did not do his duty to his pupil. Let them (the hospitals) institute an examination worthy of the name, so that when a man went up for his final examination he would be tested as thoroughly in mechanical work as in any other branch of his profession. Then the examination in mechanical work would cease to be a delusion and a farce. Students to become proficient should start with the taking of the impression, the making of the denture, and the fitting of the case in the mouth. A meeting such as that was the only opportunity a man had to speak of such things, and it was no good ignoring the old apprenticeship system until a better system could be brought forward. The speaker then referred to the teaching at certain schools.

Mr. David Hepburn commented upon some remarks upon the teaching of dental mechanics at the London schools and pointed out what some speakers appeared to ignore, that no pupil had ever received his mechanical training at a London hospital.

Mr. Storer Bennett wished to emphasise Mr. Hepburn's remarks, and to again point out that there had been no time for any pupil trained in mechanical dentistry at the Dental Hospital of London to become qualified, and as Mr. Coxon had suggested, pass under his or anybody else's hands. The time since the hospital began to take pupils was so short that nobody had finished the course.

The Chairman said there was clearly a misconception. Mr. Coxon had specifically mentioned the Dental Hospital of London, in connection with rusty vulcanizers and dirty benches, but that was altogether a mistake. The meeting had nothing whatever to do with Leicester Square Hospital or any other hospital, but it was well known that the Leicester Square Hospital had done more for dental teaching than any other institution in the country. He thought the remark about rusty vulcanisers was ill advised; it was of no importance however, as the work of the Hospital was too well known for remarks of this kind to injure it. The Leicester Square Hospital, as Mr. Storer Bennett had said, had not turned out any pupils who had gone there for mechanical dental teaching.

Mr. Coxon thought it was only fair to allow him to make some explanation. When he spoke of hospital training he simply meant that the mechanical department generally, at the time he was speaking of, was not conducted in the manner in which it should have been. It was conducted in a slovenly and careless manner.

The CHAIRMAN said there was no mechanical department until recently.

Mr. COXON said he was not speaking of the Leicester Square Dental Hospital in particular, but of dentistry at large. He only cited one instance.

Mr. REINHARDT rose to a point of order, and asked what connection the matter had with the paper under discussion.

The CHAIRMAN called upon Mr. Booth Pearsall for his reply.

Mr. BOOTH PEARSALL, in reply, said he did not come there that day to sow discord. He thought if his paper was read patiently it was a very fair and temperate statement of what he had seen. He was not prejudiced in one way or the other. He liked to see good dentistry. He first went to the States with very strong prejudice against some of the methods employed there, because he had come in contact with men who did a great deal more talk than work. But since that time he had had the great good fortune to find his way into Chicago, and, although it was very much the custom of Englishmen to think lightly of Chicago, he might as well frankly confess that he thought the best dentists in the world were to be found there. He thought the methods of teaching in this country were not as systematic as in America. The best teachers in Chicago wanted to have their products as good as they could make them. There is a great deal of talk in this country about comparisons between American and English dentistry, which among the more highly educated men in America was not heard at all. If an English dentist had anything to teach the American, the American would listen patiently to what he had to say, and if the English method was better he would adopt it. There was an open-mindedness in America that dentists failed to possess in this country. Their quickness of apprehension, even to an Irishman, was very wonderful. He did not expect to come to the meeting that day and convert a number of Saxons. Mr. Bennett was a very typical Saxon. With regard to his not paying visits to Leicester Square, he had paid a great many. He had shivered in their halls until all the work was done and they told him he had better go away. He complained once to a gentleman in London about that, and he said, "If you had come to me I would have given you a letter of introduction." One did not want a letter of introduction in America.

Mr. SMITH TURNER said he thought one did.

Mr. BOOTH PEARSALL said not. If a man had written anything or done anything every school was open to him. They had a custom there which he thought might be followed with great advantage even in Leicester Square, viz., if a man had any originality or power and paid a visit he was asked to address "the boys," and "the boys" listened with great pleasure to any remarks that were made. A man must have something definite, clear and practical to say in order to have them listen to him. As he said, he simply gave his impression of what he saw. There was no concealment of anything, and he never wished to meet with kinder or more pleasant men than he was thrown in contact with in Chicago. He was not going to set the schools by the ears. He wanted all dentists to put their heads together, which could easily be done without quarrelling, and have more systematic training. The only way of conquering the difficulty was by insisting on a mechanical examination before any students were admitted to hospitals. The members all appeared to have overlooked the fact that before any American student came in contact with a patient he had to do all this technical work, and the result was that he had a very large acquaintance with the nature of his work before he did it in the mouth. There was not a member there of any intelligence who would not admit the advantages of such a system. He confessed that in the month he spent in Chicago he learned more than he had done for years. There was another point about America which was hardly realised, viz., that men could specialise in dentistry. Professor Case, for instance, was able to re-model the features of the young face. He saw a lady who had come with a *retroussé* nose, and he turned her out quite a handsome feature after treatment. He thought nobody could look over the specimens he had shown without admitting that the system must give a wide acquaintance with the nature of the work. He did not make any special effort to have the very best work that could be got, because there were many difficulties in the way. He had himself seen students bring up work and be sent back with it by the teacher. He was delighted with the very excellent discussion that had ensued, and was only sorry he could not answer everybody, because time would not permit of it.

The meeting then adjourned.

Whit Monday, May 22.

Benevolent Fund.

The annual meeting of the friends and subscribers of the Benevolent Fund of the British Dental Association was held in the Town Hall on Monday, May 22, the President of the Association, Mr. J. HOWARD MUMMERY, occupying the chair. Over 100 members were present.

The HONORARY SECRETARY read the minutes of the last annual meeting, which were confirmed.

The Honorary Secretary read the report of the Treasurer for the year 1898 as follows:—

INCOME AND EXPENDITURE FOR THE YEAR ENDED 31ST DECEMBER, 1898.

Receipts.	£	s.	d.	£	s.	d.
To Donations and Collections ...				102	15	0
,, Subscriptions for 1896	5	5	0			
,, ,, ,, 1897	28	7	0			
,, ,, ,, 1898	392	17	6			
,, ,, ,, 1899	6	16	6			
				433	6	0
,, Interest on Consols				40	8	8
				£576	9	8

Expenses.	£	s.	d.	£	s.	d.
By Benevolent Allowances:						
For 1897	46	12	9			
,, 1898	471	13	4			
,, 1899	4	14	6			
				523	0	7
,, Subscriptions to the Wolverhampton Orphanage and Expenses of Canvassing... ...				23	10	8
,, Dr. Walker's Expenses				0	10	0
,, Stationery and Printing... ...				17	3	8
,, Postage and Sundries				10	9	2
				£574	14	1
,, Surplus Balance—carried down				1	15	7
				£576	9	8

BALANCE SHEET 1ST JANUARY, 1899.

Liabilities.	£	s.	d.
To Accumulated Funds:			
Balance from last Account	1,856	0	5
Surplus brought down	1	15	7
	£1,857	16	0

Assets.	£	s.	d.
By Investment in Consols (at cost)	1,656	7	3
,, Cash at Bank of England, Western Branch ...	171	8	9
,, Cash in hands of Honorary Secretary ...	30	0	0
	£1,857	16	0

April 27th, 1899.—We have written up the above Accounts from the Books and Vouchers of the Benevolent Fund of the British Dental Association, and certify them to be correct. We have also seen the Certificates for the amount of Investments.

(Signed) J. W. BUTCHER & CO., *Chartered Accountants, Imperial Buildings, Ludgate Circus, E.C.*
CLAUDIUS J. ASH,
LAWRENCE READ,
STORER BENNETT, } *Hon. Auditors.*

GENTLEMEN,—According to custom, as Treasurer of the Benevolent Fund of the British Dental Association, I give you my Financial Report for the last year, and I am happy to say that it is more satisfactory than that for 1897.

I had at our last annual meeting to express my regret that our receipts had fallen below those of 1896 by £34 15s. 10d. This year they have not only recovered from that depletion, but exceeded the income of 1896 by £6 19s. 11d. You may say "that is not much," but it is really a gain on last year of £41 15s. 9d., which is certainly satisfactory, especially as it is due to the increase of subscriptions to the extent of £53 2s. 6d.

This, however, is discounted by a diminution of £14 3s. 8d. in donations, but it is far healthier to have the increase in subscriptions than donations, as the one is a more assured source of income than the other.

The interest on our investments is greater by £2 16s. 11d.

We have spent more last year than in the preceding by £129 2s. 7d., the figures being for 1897, £445 11s. 6d., and for last year £574 14s. 1d. This increase was due to our Benevolent disbursements, which were £120 9s. 2d. more than those of the preceding year. This must be a source of satisfaction to our subscribers, as so much more need was relieved, though of course we regret that it existed.

The stationery and printing bill was reduced last year by £19 3s. 5d., but that for postage and sundries was increased by £3 16s. 2d.

In the course of the year we were so sanguine as to our solvency that we invested £150 in Consols, but when we balanced our accounts at the end of the year we found that we only had £1 15s. 7d. to our credit, which was too narrow a margin; but still it was on the right side. Moreover, no deserving case was left unrelieved to the extent your Committee considered it needed. My statement is bare and uninteresting compared with that of your Hon. Secretary, who makes himself personally acquainted with each individual receiving your help, and thus can, and I am sure will, give you many particulars which will be most satisfactory to you.

I hope that his statement will induce more to become subscribers, as he will be able to show how many have been saved from falling into the lowest stratum of society, and helped to remain and lead useful lives in that in which their parents lived.

You may rest assured that your Committee will always use their best endeavours to administer your bounty so as to do the most good in the wisest way.

Believe me, Gentlemen, to remain,
Yours very faithfully,
A. J. WOODHOUSE.

Mr. C. ROBBINS moved the adoption of the Report. He said he happened to have been privileged during the last year to see a little more than usual of the internal working of the Committee, and of the value of the Chairmanship of the worthy Treasurer. He was well known to many present as a type of a good old English gentleman; and as Chairman of the Committee he was very careful, and brought to bear a vast amount of experience. He (Mr. Robbins) thought he was not betraying the secret of the Committee if he mentioned one instance which struck him very forcibly. A little while ago a lad, to whom the Fund had been very helpful, seemed to be going a little wrong, and there was a chance of his making shipwreck. The secretary, with his usual tact, got him to appear before the Committee. Questions were put; the boy's complaints were listened to, his supposed grievances heard, and he (Mr. Robbins) should never forget the fatherly way in which the Treasurer took that boy by the hand and gave him practical advice. The result of it was that the boy was now doing well. If that boy succeeded in life, as he hoped he would, he would be able to look back to that little time in the Committee, and to the fatherly words given then, and the shake of the hand, as the turning point in his career. He had very much pleasure in asking the meeting to accept the Report. There was not a line too much. There was not a touch of colour that ought not to be there, and he could tell the members that there was not a penny subscribed to the Benevolent Fund that was not most economically and judiciously used.

Mr. W. E. HARDING seconded the motion, which was carried unanimously.

The HONORARY SECRETARY read the report of the Committee of Management as follows:—

GENTLEMEN,—Your Committee beg to submit to the subscribers and contributors to the Benevolent Fund their Sixteenth Annual Report, viz., from March 31, 1898, to March 31, 1899, and in so doing would wish to call attention to the progressive work being done. A list of contributors, together with this and the Treasurer's Report and Balance Sheet, has been sent to all subscribers, and further copies will be available for distribution amongst non-subscribing members of the Association.

At the last annual meeting the view was expressed by some that the working of the Fund was not sufficiently brought to the notice of the profession. Acting on this hint, your Executive have, during the past year, published *monthly* lists of new contributions, and in January last issued an interim report, and this course will for the future be maintained. In addition to this, the Publishing Committee of the Association kindly offered to give a Leader on the Fund, which was thankfully accepted. The article in question, headed "What Association Means," was most able, and, being written by one not actively connected with the Executive, the subject was approached from a broad point of view, and cannot fail to have appealed to many who had hitherto withheld their support. One direct result which is within the knowledge of your Committee is that one who had not been a subscriber sent a cheque representing one guinea per annum from the date at which he took his diploma, a course which others may possibly be induced to follow.

The Publishing Committee of the Association has ever been ready to aid the Fund when called upon, and your Committee would take this opportunity of thanking them for their kind consideration, and in particular for their late voluntary contribution of a " Leader."

Ten other local representatives have been appointed in various districts. Your Committee look for further increase in the numbers of adherents as a result of the interest of these gentlemen, who of necessity are more in touch than they with provincial practitioners. The Hon. Secretary of the South Wales and Monmouth Branch has consented to act as local representative, and "Little Wales," which so far has been poorly represented, will doubtless show increased activity.

It will be within the recollection of many that the last annual meeting of the Fund at Bath was one of the largest yet held, and your Committee would wish to impress upon the members of the Association that these meetings are not intended solely for contributors, but that all members of the Association and their lady friends are welcomed, and they feel that the Fund cannot do otherwise than benefit from increased knowledge of what is being done.

Your Committee held four meetings during the year.

Of the cases mentioned in last Report as being practically annuitants, two from advancing age or illness have been granted additional aid.

One, a widow, has married again, and her grant has been withdrawn.

We have now five dentists (two with wives), six widows and two adult orphans, either wholly or in part dependent on the Fund and their maintenance costs about £265 per annum.

We have a lad at a Home for Feeble-minded, at a cost of £18 4s. per annum, plus a small amount for clothes, and a girl at school at an annual cost of £28.

Since last Report one of our boys has left school and has been apprenticed to learn mechanical dentistry, and the thanks of the Committee are due to one of our subscribers who has kindly provided this facility. This lad costs us a small sum at present for keep in a Boys' Home, and for clothes, but he will shortly be able to pay his own way.

Of the cases mentioned as "new" in our last Report :—

The widow of a M.R.C.S.Eng., after a grant for arrears of rent, has made a fresh and so far successful start.

A dentist aided during illness has been helped to obtain employment and with but this little pecuniary assistance now promises to do well.

A boy, aged 8 years, has been elected to Wolverhampton Orphanage, and your Committee have thought it only right to make a donation to that Institution of £10 10s. and a subscription for the year of £5 5s. which latter it is intended should be kept up so long as the lad remains. A brother of the above, aged 7, has been placed at an Orphan Home, where he is entirely provided for and educated at an annual cost of £10. Their widowed mother now has only one young child at home and is maintaining herself.

The widow of a L.D.S., having eight children, four of whom are entirely dependent on her, continues to receive a grant at the rate of £13 per annum.

A L.D.S., aged 67, whose health and mental vigour are materially impaired, has been unable to find employment and is being maintained at a cost of £26 a year.

Since last Report the son of a widow (who some years ago sought the aid of the Fund) has been placed in a Business House, owing to the influence of your Executive, and without pecuniary outlay. In this case there were eight fatherless children unprovided for. Seven are now either at work or being cared for in Orphanages ; this satisfactory result is in great measure due to the energy of the widow, aided by the help and interest of the Committee, and effected at no greater expense to the Fund than the board and schooling of one for three years and a small outlay for canvassing expenses. The remaining child was boarded and educated free, whilst her sister was at the school and is the one before referred to in this Report as being now at school at a cost of £28 per annum. She will shortly be leaving to take up some occupation.

Others who have in past times been dependent on the Fund are now making progress in their various vocations as the result of the start afforded them, and we may with satisfaction reflect that such assistance as has been given in former years continues to bear good fruit *long after* pecuniary help has been withdrawn. Some go their way when their emergency is relieved and no more is heard of them, but others from time to time report themselves and renew their expressions of gratitude for having been placed in an independent position.

The last twelve months has happily not been marked by so many "new cases." One application was declined as ineligible, another as being unsatisfactory on investigation.

In one case a widow re-applied as her health had again broken down, and a temporary grant was made. After a few months' help on her former application she was able to maintain herself and family of four children for three or four years, and doubtless she will do so again when her health is restored.

In another case your Committee contributed to a local fund which was being raised to help the widow of a L.D.S., who had been left with several children all unprovided for, and this course obviated a personal application to the Fund.

A dentist who, during a lengthy illness, had been obliged to pawn his instruments, was at a small outlay enabled to recover the same, and has since made no application for help.

A dentist, aged 61, who for many years conducted a moderate practice with strict propriety, was by failing health obliged to relinquish work. He and his wife are making a determined struggle to maintain themselves and they are receiving a small grant to keep them from actual want.

A dentist, aged 69, broken in health and unable to compete with younger men, receives sufficient to keep him from anxiety. His wife has a very small annuity, quite inadequate to support them both.

The widow of a dentist with two young children sought assistance for her boy, aged 8. He is being sent to a private school at a very reduced fee, pending his candidature for an orphanage. The elder child is being cared for by relatives, and the widow herself is seeking employment.

A widow, aged 60, who is very ill, and whose nervous system was sadly shaken by the sudden death of her husband, is being in part maintained, and it is hoped that she may shortly be able to do something for her own support.

Your Committee think enough has been said to show that the Fund is doing really good work, and has in the past year, as formerly, maintained many in a position of comparative comfort—has raised a few from poverty, and by education and other means has placed others in a position in which their future may be bright. All this is matter for congratulation ; at the same time it must be noticed that the outlay has been considerable. and that the actual outgoings shown in the Balance Sheet exceed the subscriptions received during the year, and that but for the interest on invested monies there would have been a deficit.

The new subscriptions resulting from the appointment of Local Representatives has not been so great as had been hoped, but it will probably be more in the future.

The receipts from collections at Branch Meetings, though higher than last year by about £6, is only about equal to that in 1896. The Irish Branch, in lieu of a collection, sent a special donation of £10, and the Reception Committee at Bath sent a handsome contribution of £15 from their surplus. Added to this the Fund is richer by £100, owing to the munificent gift of Mr. Wm. Ash, senior, which was given on the condition that it should be added to the Capital account. Such generosity has never been exceeded in the history of the Fund, though it has once been equalled.

During the year more than one case of begging imposture has come before the notice of your Committee, and they would beg all members of the profession to discountenance indiscriminate charity and refer all cases for investigation.

Your Committee desire to tender their thanks to all who have aided them in the work of investigation, or by the distribution of grants and oversight of cases in distant localities, or by help in canvassing for orphans, also to those who have helped to provide occupation for those dependent on the Fund. As in former years they are deeply indebted to the auditors, Messrs. C. J. Ash, Storer Bennett, and Lawrence Read, who in conjunction with Mr. Butcher, our professional accountant, have carefully checked the accounts.

In accordance with Rule XIX., this Report is now offered for your approval and acceptance.

Mr. BRUNTON had great pleasure in moving the adoption of the Report, and, in doing so, he said he was the guilty party who proposed the more frequent appearance of the reports in the Journal. After doing so he felt some feelings of repentance at having done such a bold thing, but he thought that the appearance of the meeting and the Secretary's Report somewhat justified it. He was sorry to say he had not been so successful in stimulating members to subscribe to the Fund, and one gentleman stated as his reason for not subscribing to the Fund that the charity was extended beyond the limits of the Association—that it was given to members of the profession who were not members of the British Dental Association. He thought that was by far too tight a ring around their charitable feeling. He thought they were doing right in extending the charity of the Benevolent Fund to gentlemen who were not members of the Association, and, in doing so, they were setting a benevolent example.

Mr. REDMAN seconded the motion, and emphasised Mr. Brunton's remarks with regard to extending the charity to members of the profession who were not members of the Association. He thought it was their duty to look to members of the Association first, but if any deserving case was brought before the Committee they would, he was sure, not take it into consideration whether the man was a member of the Association or not. Some people thought that only subscribers to the Benevolent Fund could receive relief, but that was a great mistake. It would be well for members of the profession to know that the Committee dealt with the cases as they arose. He certainly thought more subscribers to the Fund should be obtained. The number of subscribers was out of all proportion to the number of members of the Association.

The resolution was carried unanimously.

The CHAIRMAN, in proposing the re-election of the Hon. Treasurer and the Hon. Secretary, said he thought it was unnecessary for him to say anything on the subject. The Hon. Treasurer they knew well, and nobody could possibly fulfil his duties better. The work of the Hon. Secretary was known, and how he enquired into every case and how thoroughly he did his work.

The resolution was carried unanimously.

On the motion of Mr. RUSHTON, seconded by Mr. BEADNELL GILL, Mr. Redman was elected a member of the Committee in place of Mr. Ashley Gibbings, who retired under Bye-laws 10 and 11.

On the motion of Mr. REINHARDT, seconded by Mr. STOREY, the retiring auditors, Mr. Lawrence Read and Mr. Claudius J. Ash, were re-elected. Mr. Storer Bennett was ineligible for re-election because as Chairman of the Representative Board he was *ex-officio* on the Committee of Management of the Fund. On the motion of Mr. A. A. MATTHEWS, seconded by Mr. BRUNTON, Mr. Wm. Hern was elected auditor in his place.

Mr. STORER BENNETT said he was sure it would be the wish of the members that the distinguished services of the executive of the Benevolent Fund should not go without a mark of approval for all the work they had done during the year. It was known what a great amount of time Mr. Woodhouse devoted to the financial portion of the Fund, and they had also heard—and those of them who had been privileged to see some of the work knew—what indefatigable labour Mr. Ackery devoted to the proceedings. It had been his privilege to see something of the inner working of the Fund, and he could assure them that the amount of time and attention Mr. Ackery devoted to the labour—which to him was a labour of love, although involving a great amount of time and energy—was enormous. He knew that the work involved such a large expenditure on his part, of care and attention, that he believed there was no one else who would be at all likely to devote anything like the same attention to it as he did. The amount of tact he brought to bear enabled him to discriminate between those cases which were deserving and those which were not, and to give the dole to those who required it with the greatest amount of kindness and courtesy on his part, thereby making it as little like charity as possible. He was sure the members would be grieved to feel that their very arduous labours were passed over without an adequate reward, but the only reward that he would ask them to give the Hon. Secretary and the Hon. Treasurer was that of their approval—the gentlemen by a hearty vote, and the ladies by their gracious smiles.

Mr. Beadnell Gill seconded the motion. He said he would also at the same time like to take advantage of Mr. Woodhouse's kind services by adding to his labours, and if possible, in enabling him to obtain more money for the Fund. It was well not only to get a subscription, but a subscription that would be money used to get more money. A little idea had been in his head for some time, and, if it was within the rules of the Fund, he should like to put it forward —that the Fund should go rather wider afield for money. If subscriptions might be obtained outside the Association membership there were plenty who would subscribe, and he thought if somebody would give a certain amount of money to enable a letter or circular of some kind appealing to men who were in a good position, it might be of some service and increase the revenue. He thought at first of not mentioning the matter, but perhaps it would be rather bad policy, and therefore he should be very pleased to give £5 to the Benevolent Fund upon condition that it was spent in some such manner as to try and get some funds from practitioners not already subscribers to the Fund.

The motion was carried with acclamation.

Mr. Ackery thanked the members on behalf of the officers of the Fund for the extreme warmth with which they had recognised their efforts in the distribution and management of it. With regard to himself, he was sure the remarks made by Mr. Storer Bennett were far too eulogistic. ("No, no.") What Mr. Bennett said was perfectly true, the work was a labour of love, and was a pleasure to him. The only thing that was at all a trouble was the fact that the Fund was not supported as he thought it should be by annual subscribers. The proportion of 400 out of 1,000 he did not think was good enough, and he did not mean to let the matter rest until more subscribers were obtained. With regard to Mr. Gill's suggestion and kind offer, it was a valuable suggestion, but he was not quite satisfied that it was likely to be very productive. His experience of appeals was that they were generally put in the waste-paper basket. A few years ago an appeal was sent out addressed to the non-subscribing members of the Association, solely because it was felt that to send out a general appeal was simply to apply to those who had already been very liberal. It was those who had given before who were interested to give again. That was seen at all the Branch collections and the Annual Dinner, and so forth. The men they desired to get at were the non-subscribing members of the Association, and their example would probably produce fruit amongst those who were not members of the Association, but who were in themselves eligible for help from the Fund should it be needed. He forgot the exact statistics, but in 1895 an appeal was sent out addressed to the non-subscribing members of the Association. Something like 750 appeals were sent out, and three or four members—Mr. Hutchinson, Mr. Frank Colyer, Mr. Maggs and himself—wrote personal letters to 137, and sent them with the appeal. The net result was only 60 subscriptions out of the 750 and 56 of those were in reply to personal letters. That only left four which were touched by the ordinary appeal. Those were statistics and facts which could not be overlooked. He thought a general application to the members of the profession who were non-subscribers and non-members of the British Dental Association would not be promising, but he thought they had better accept with grateful thankfulness Mr. Gill's offer, and see what could be done by personal application.

On the motion of Mr. W. HERN, a hearty vote of thanks was accorded to the President for presiding over the meeting, and the PRESIDENT briefly replied, stating that it was always a pleasure to take any part in helping such a good cause.

Mr. HOPE asked if members who did not subscribe to the Fund received the Reports.

The HON. SECRETARY said the Reports were only sent to subscribers, but he had 500 printed for distribution amongst non-subscribers.

Mr. HOPE could not help feeling that it contained such valuable information, and put the case before everyone who read it with such clearness, that it could not but do good to send the book to every member of the Association. He did not know whether it would cost the Fund any considerable amount of money, but perhaps if the money Mr. Gill had given was used in sending out the book it would do more good than an appeal.

Mr. ACKERY said that the Reports had been sent on former occasions and at intervals to all the members of the Association, and under present circumstances, with the local representatives at work in different centres, the book was practically sent to a very large number of non-subscribing men and those who were known to be in a position to support the Fund if they felt interested.

Mr. BRUNTON said there was nothing so good as a personal appeal.

Mr. HOPE said he had just had a word dropped to him that perhaps the ladies could do a very great deal of good for the Fund. One lady sitting close to him said she would be very glad indeed to subscribe towards the Fund, and perhaps there might be others. They had heard the good work that was being done, and they might go round as missionary collectors amongst their friends.

Mr. GLAISBY said he should be very pleased to subscribe a guinea per annum on behalf of his wife.

Mr. ACKERY said that the help of the ladies had not been forgotten and had not been fruitless. At the meeting in London he got what ladies he could together in a "scratch" way—he did not use the word as implying spitefulness—and out of a very small meeting he had a very large proportion of offers of help. The help he asked for was that ladies should promise to assist in the investigation of cases or the administration of the grants made amongst the widows and children in different parts, because it was extremely difficult for him to attend to every case. Although the Treasurer said he saw everyone, that was not strictly true. The idea was that everyone was seen by somebody. The ladies were all willing to help. He mentioned in last year's Report that in certain circumstances the help of ladies had been asked in looking after the women and children in the families, and that wherever he had made the request it had been granted in a most gracious way. But in regard to asking ladies for subscriptions, he drew the line at that. The first thing he said to them was: that they did not want to ask them for pecuniary assistance. The members ought to be able to give that themselves. They ought not to go outside the profession, and if the members of the Association could not do enough there was still the rank and file of the non-members amongst the registered practitioners, another 4,000 at their back. The example, such as Mr. Glaisby had set, of including his wife and making a subscription on her behalf might be taken as a hint by every married man in the Association. Then the Fund would do very well.

Mr. HOPE thought the unmarried men might also be able to obtain assistance from their lady friends.

The meeting then closed.

Monday, May 22.

MICROSCOPICAL SECTION.

THE Microscopical Section met in the Town Hall on the morning of Monday, May 22, Mr. F. J. BENNETT, the retiring President, at first occupying the chair.

In opening the meeting, Mr. Bennett said his duties in connection with the Microscopical Branch were very few on that occasion. He had to record since the meeting at Bath that things had gone on smoothly and successfully in every way. There was no loss to record, and there had been a substantial addition to the strength of the meeting in Mr. Leon Williams, who was a guest at the Bath meeting and was now a member of the Association. The fact that matters had gone so successfully was due to the Secretary, Mr. Hopewell Smith, who was as indefatigable as ever, and Mr. Bennett had the greatest confidence that the Section would be carried on with equal success as long as Mr. Hopewell Smith was the Secretary. He (Mr.

Bennett), in his address at the Bath meeting, expressed a hope that something might be done in the way of encouraging research in dental matters, and he had now the great satisfaction of being able to say that on Saturday that wish received tangible form in the resolution which was carried at the General Meeting in favour of grants in aid of research. In retiring from the chair he felt that some substantial work had been done while he had been in office. He was quite sure the Microscopical Section would be as prosperous under the presidency of Mr. J. J. Andrew as it had been hitherto. It was one of the pleasures he had, in retiring from the post, to feel how ably he would be succeeded by Mr. Andrew.

Mr. Bennett then vacated the chair, which was taken by Mr. J. J. ANDREW, of Belfast, who at once proceeded to deliver his Presidential Address.[1]

Mr. MUMMERY rose to ask the members to give a hearty vote of thanks to the President for his very interesting and able paper. The study of bacteriology was an exceedingly interesting one, and of great importance to the dental profession, since caries and many other diseases of the mouth were found to be due to organisms. There were several subjects yet to be resolved, such as the cause of pyorrhœa, and he thought all the members ought to have some knowledge of the general science of bacteriology. They had all seen the very beautiful photographs Mr. Andrew exhibited, particularly those of the flagella. He (Mr. Mummery) had had some little experience in the work himself and knew the great difficulties of it, and Mr. Andrew's success had been very great indeed. The trouble of photographing was very great, and it was necessary to wait until all vibrations were over, and then just as one thought everything was going nicely, somebody tumbled downstairs or called you in to supper. Only those who had gone through the work could appreciate what Mr. Andrew had done.

Mr. SIDNEY SPOKES seconded the motion. He said it was apparent to all members of the Association that they now had as President another member of the Association who had been very severely inoculated with the love of bacteriology. He hoped he would get through the disease in a satisfactory manner and be convalescent later on.

The resolution was carried with acclamation, and the President briefly returned thanks.

The following papers were also read:—

On "Micro-organisms in Dental Caries," by Mr. K. Goadby.

On "Bacteriology," by Mr. Leon Williams.

On "A Modification of Weil's Balsam Process," by M. J. Choquet.

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[1] To be published as an Original Communication.

On "An Original Modification of Weil's Process for the Preparation of the Hard and Soft Tissues Combined," by Mr. S. F. Rose.

The proceedings were accompanied by lantern demonstrations and an exhibition of microscopical preparations by Messrs. J. H. Mummery, F. J. Paul, C. S. Tomes, F.R.S., J. Choquet, S. F. Rose, Storer Bennett and F. J. Bennett.

At 12.15 p.m. the business of the General Section was resumed.

Papers were read on "The Trophic Function of the Dental Pulp," by Mr. T. E. Constant, and on "Some Rarer Forms of Abscess dependent on Teeth," by Mr. J. G. Turner.

The afternoon was devoted to short papers and demonstrations, as follows:—

Mr. R. P. Lennox showed (*a*) "A Pair of Pliers of Original Design for carrying and adjusting a Copper Strip to a Root preparatory to crowning it by the Fusible Metal Mandrel Method;" also (*b*) "A Method of taking Impressions of the Lower Jaw with Composition without drags, in cases where the Molars and Bicuspids lean towards each other across a gap."

Mr. W. H. Breward Neale showed (*a*) "A Method of constructing Partial Lower Dentures with Special Reference to Prophylactic Conditions;" (*b*) "Regulation Case showing Treatment of Superior Protrusion at an Early Age."

Mr. A. S. Underwood read a paper on "Porcelain Inlay Work."

Mr. Leon Williams gave "An Exhibition of Specimens of Conservative Dental Work, viz., Crowns, Crown and Bridgework, Inlays, &c."

Mr. George Brunton showed "A New Matrix Buckle, &c."

Tuesday, May 23.

Adjourned General Meeting.

The adjourned general meeting was held in the Town Hall on Tuesday, May 23, in the afternoon, Mr. J. Howard Mummery, the President, being in the chair.

Election of Treasurer.

The first business was the election of Treasurer, and, on the motion of Mr. West, seconded by Mr. Smith Turner, Mr. W. H. Dolamore was unanimously elected Treasurer in the place of Mr. W. Hern, who retired.

Mr. Dolamore briefly returned thanks for his election.

ELECTION OF A FELLOW OF THE BRITISH DENTAL ASSOCIATION.

The PRESIDENT said that the Representative Board recommended the election of Dr. R. T. Stack, of Dublin, as a Fellow of the Association. Dr. Stack would be the first Fellow who had been elected, and he thought a better man for that position could not have been chosen. Dr. Stack had done a great deal for the Irish Branch and for the Association, and it was a sad thing that he should be stricken down by illness in the midst of his work. A private letter had been received from Mrs. Stack, in which she said Dr. Stack was very pleased to hear of the recommendation of his name for election as a Fellow.

On the motion of Mr. F. CANTON, seconded by Dr. WALKER, Dr. R. T. Stack, of Dublin, was unanimously elected a Fellow of the British Dental Association.

TIME OF ANNUAL GENERAL MEETING, 1900.

The next business was the fixing of the time for the annual meeting at Leeds.

Mr. BRUNTON explained the probable difficulties of finding accommodation at Whitsuntide, and said he would prefer making inquiries before the point was settled, and ultimately, on the motion of Mr. REINHARDT, seconded by Dr. WALKER, the question of the time of the meeting was remitted to the Representative Board to be dealt with.

LONDON UNIVERSITY AND DENTISTS.

The following resolution was then moved by Mr. GEORGE CUNNINGHAM:—

"That the Hon. Secretary be instructed to embody the following propositions in a petition to the University of London Commissioners on behalf of the British Dental Association:—

"*A*.—(1) That dentistry should be granted a degree (or degrees) or some like recognition, by the New Teaching University of London.

"(2) That the degree (or degrees) should be a separate one in dentistry with a special title;—with a curriculum and examinations different from that of medicine, though taking in some medical subjects.

"(3) That such degree (or degrees) should be registrable in the Dentists' Register by the General Medical Council.

"*B*.—That, failing such a distinctive and registrable degree (or degrees) being granted, the B.Sc. and D.Sc. be accorded with a curriculum and examinations suited for dentists, the D.Sc. only to be given for research work.

"*C*.—That a special Board of Dental Studies be constituted to formulate and regulate the appropriate curriculum and examinations;

and that it be a recommendation to such Special Board to increase the scope of the present dental curriculum by including such subjects as Biology, Practical Physics and Mechanics, Applied Dental Technics (Mechanical Dentistry), General Pathology, and Practical Bacteriology."

In moving it, he claimed for himself what he cheerfully accorded to anybody who opposed the resolution, that they were all actuated by the selfsame motive, one common desire for the welfare of the dental profession; and, further, that that desire was not based on any mere sordid, commercial ground tending to their own personal aggrandisement or social opportunity, but primarily and essentially on the still greater stimulus so characteristic of the age, the greater well-being of the whole community. In that connection he was happy to say that both parties had given hostages to fortune.

It had been well said that very far-reaching results depended on the answer of the British Dental Association to the question of what recognition should be accorded to the dental profession in the New Teaching University of London. He believed the motion contained the maximum and the minimum which the Commissioners were likely to grant, and he asked any fair, open-minded dentist of some years' standing to say whether even the minimum was not more than he ever expected to see in his own life-time. Further, he felt certain that anything like the unanimous decision of the Association would have the earnest consideration of the Commissioners, who were skilled in educational matters, and far from being insensible to the claims of the profession. But the Commissioners, like the profession itself, might sometimes be confused in coming to a decision as to what was the true voice of the profession, as to the best lines on which that profession might be developed. The proceedings of the Association had been too public for the Commissioners to be unaware that there was a difference in that respect amongst dentists, and even among members of the Association. He admitted that to be effective the British Dental Association must express its voice in no uncertain way. He did not think it was absolutely necessary, under present conditions, that it should be unanimous, though he heartily wished it could be. It might and it should be, but how?

There could be no use in shutting one's eyes to the fact that there were two very distinct parties in the Association; those who desired, as the honoured President did in his address, that the joint diploma (M.R.C.S. and L.R.C.P.) should, in time, be obligatory for dentists, and those who preferred to be given an opportunity of developing dental education on its own lines in accordance with its own necessities, without regard to the inclusion of any extraneous matter essential to the medical, but comparatively valueless to the dental practitioner.

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"(2) That the degree (or degrees) should be a separate one in dentistry with a special title;—with a curriculum and examinations different from that of medicine, though taking in some medical subjects.

"(3) That such degree (or degrees) should be registrable in the Dentists' Register by the General Medical Council.

"*B.*—That, failing such a distinctive and registrable degree (or degrees) being granted, the B.Sc. and D.Sc. be accorded with a curriculum and examinations suited for dentists, the D.Sc. only to be given for research work.

"*C.*—That a special Board of Dental Studies be constituted to formulate and regulate the appropriate curriculum and examinations;

and that it be a recommendation to such Special Board to increase the scope of the present dental curriculum by including such subjects as Biology, Practical Physics and Mechanics, Applied Dental Technics (Mechanical Dentistry), General Pathology, and Practical Bacteriology."

In moving it, he claimed for himself what he cheerfully accorded to anybody who opposed the resolution, that they were all actuated by the selfsame motive, one common desire for the welfare of the dental profession; and, further, that that desire was not based on any mere sordid, commercial ground tending to their own personal aggrandisement or social opportunity, but primarily and essentially on the still greater stimulus so characteristic of the age, the greater well-being of the whole community. In that connection he was happy to say that both parties had given hostages to fortune.

It had been well said that very far-reaching results depended on the answer of the British Dental Association to the question of what recognition should be accorded to the dental profession in the New Teaching University of London. He believed the motion contained the maximum and the minimum which the Commissioners were likely to grant, and he asked any fair, open-minded dentist of some years' standing to say whether even the minimum was not more than he ever expected to see in his own life-time. Further, he felt certain that anything like the unanimous decision of the Association would have the earnest consideration of the Commissioners, who were skilled in educational matters, and far from being insensible to the claims of the profession. But the Commissioners, like the profession itself, might sometimes be confused in coming to a decision as to what was the true voice of the profession, as to the best lines on which that profession might be developed. The proceedings of the Association had been too public for the Commissioners to be unaware that there was a difference in that respect amongst dentists, and even among members of the Association. He admitted that to be effective the British Dental Association must express its voice in no uncertain way. He did not think it was absolutely necessary, under present conditions, that it should be unanimous, though he heartily wished it could be. It might and it should be, but how?

There could be no use in shutting one's eyes to the fact that there were two very distinct parties in the Association; those who desired, as the honoured President did in his address, that the joint diploma (M.R.C.S. and L.R.C.P.) should, in time, be obligatory for dentists, and those who preferred to be given an opportunity of developing dental education on its own lines in accordance with its own necessities, without regard to the inclusion of any extraneous matter essential to the medical, but comparatively valueless to the dental practitioner.

It had been contended that the members of the Association were a heterogeneous body unfitted to discuss a question of so important an educational character. But was that so? Who did not remember Campion's epoch-marking communication on the necessity for a higher dental diploma at the Exeter meeting of 1891; the keen criticism it received, and his masterly reply thereto? The question had also been raised in the papers, and communications in the interval. Moreover, who had forgotten the only possible logical deduction from Mr. Headridge's unanswerable comparison of the curricula of the dental and medical practitioners and their applicability to the needs of dentists, and his more recent pertinent communication as to the title which should be used? The members of the Association had surely been educated sufficiently in the question to enable them to give a decided expression of opinion with regard to the principles involved. Granted that differences, honest and honourable enough, existed between both parties, it was necessary to consider how far they were in accord, and in what way they differed.

First of all, the dental profession, unlike any other branch of medicine or surgery, had been given a definite recognition by the State, which required a special curriculum and a diploma in dentistry for the purpose of registration; secondly, there is a separate and distinct register for dentists, in the same way as there is one for the medical profession; thirdly, there is a separate and distinct diploma granted by the Surgical Corporation in England, Scotland and Ireland to those who desire to practise dentistry; and fourthly, there are separate and distinct schools of dentistry established for the purpose of educating students for entrance to the dental profession. In addition to that there are separate and distinct journals of dentistry devoted to promoting the education of the practitioner, and further, and much more important, there is a separate and distinct National Association, with numerous and influential branches, constituting a kind of post-graduate training for the dentist, just as there is a National Association and branches for the medical and surgical professions. There are no university degrees in dentistry at present open to students; and, seeing that in medicine and surgery there were university degrees in addition to the licences and diplomas of the Corporations, it appeared reasonable that an equal privilege should be granted to the dental student of obtaining a university degree in the special subject of his profession, which would be recognised by the State.

With regard to the question of a University dental degree, the question was once brought forward by the Scottish Branch when Edinburgh University was framing a new Act of Parliament. They wanted the insertion of a facultative clause which would enable them to found a university degree. The question came up before the

Representative Board, but the proposition was rejected. Now the question had come up in a different shape and a new aspect, and there was evidently a change of opinion going on in the profession, because many of those who then opposed that motion in so far as it related to Edinburgh University, had already petitioned the University of London Commissioners in favour of granting a university degree for dentists. But their proposal is: "That dental students should be called upon to pass the Matriculation, the Preliminary Scientific and First M.B. Examinations, on precisely the same conditions as medical students, but that after passing the last examination they be allowed to proceed to a special examination in Surgery and Dental Surgery for the degree of Bachelor of Surgery only, such degree in this case being described as the degree of Bachelor of Surgery in the Dental Department, or distinguished from the ordinary degree in any way that may seem best."

He proposed to quote one or two sentences on the question from a paper on the "Study of Dental Surgery and the Means thereto," by the late Sir John Tomes, whose name would appeal to all as an authority on the question of dental education:—"No apology need be offered for the separate practice of dental surgery; neither need arguments be put forward in support of its continuance as a distinct branch of surgical practice. The necessities of society on the one hand, and the technical requirements of the dentists on the other hand, have determined the condition of separateness." Again, he said, "It is not reasonable to suppose that the dental could, even if they would, exact a higher degree of culture than the medical colleges." He (Mr. Cunningham) had insisted upon those two facts for the reason that there was a supposition that the motion with which his name was connected was a motion of a separative character. He was prepared to admit it; but it was a separativeness clearly pointed out in the quotations he had made, and therefore on the lines advocated by Sir John Tomes ("No, no!"). He should like to mention a further quotation from Sir John Tomes' address. He pointed out in the original memorial address to the Royal College of Surgeons of England which resulted in the present L.D.S. Examinations, that:—"The memorialists do not suggest an education and examination inferior to that required of the medical practitioner, but propose a certain difference in kind only, not a difference in degree, an education and examination specially adapted to the requirements of the dental surgeon, as distinguished from that fitted for the 'general surgeon.'" Well might the late Sir John Tomes comment on that as follows:—"The value of the foregoing paragraph has not been fully or rightly estimated, either here or elsewhere. Equality of education, professionally or otherwise, does not mean identity of knowledge, a lawyer and a doctor may be equally well educated. The degree of education may be the same in all, but some of the subjects embraced in each profession will be different. So it may be with the dentist and the doctor; the degree of culture may be equal, but the subjects of study will be in part different. It has been strongly urged that dental should come as supplemental to medical knowledge; that the practitioner should be a doctor first and a dentist afterwards. This opinion might perhaps be sustained if the position were reversed—a dentist first and a doctor afterwards, provided all or even a majority of students were sufficiently rich in money and time to extend the educational period from four up to six years here." Still more impossible has this condition become by the raising of the four years then required of the medical student to five, in which he "has not an hour to spare for any other subject."

It is admitted that many dental students, impelled by the advocacy of the London Dental Schools, and especially those aspiring to teaching and hospital appointments, have taken extra qualifications in medicine and surgery. Over and over again, papers have been published in dental journals advocating the necessity of a higher diploma in dentistry, but asserting the fact that such medical and surgical qualifications are not, and never can be, higher qualifications in dentistry.

In earlier days it was relatively easy for the dentist to add M.R.C.S. to his L.D.S., but concurrently with the increased severity of the dental examinations there are the increased requirements for the conjoint degree in medicine and surgery. An old question, therefore, assumes a new aspect. A small but extremely influential coterie of the dental profession "can distinctly foresee the time when every dentist will be a qualified surgeon, and when he will be no less a thoroughly practical dentist *because* he has a comprehensive knowledge of surgery." On the other hand, a large number hold that such opinions are "so wholly alien to the spirit and purpose of the Dentists Act, so opposed to the differentiation which is gradually but surely manifesting itself between medical and dental education as each becomes more perfect in its own sphere, and in addition they run so entirely contrary to the opinions and feelings of the great majority of our profession as hardly to merit serious consideration at our hands, much less at the meeting of an Association (British Dental), the fundamental principles of whose constitution they necessarily ignore and set aside."

Granted this unanimity as to the necessity of recognition, and the difference as to its nature and character, it still seems evident that there is practical unanimity that the degree asked for now should carry with it a licence to practise, and hence should be registrable in the Dentists Register, by the General Medical Council.

No doubt the ideal of such a body as the present Commission, owing to the complexity and number of the different licences, would be that there should be one State qualifying examination common to the whole country, both for medicine and for dentistry, and that university degrees, whether in medicine or dentistry, except as extra qualifications, should not be registrable. As long as the new University degrees in medicine are registrable it is evident that a similar provision should be made for those in dentistry.

The only point of difference between the proposition he now moved and that which had come from the two metropolitan schools was with regard to points of details. So far, then, they were agreed.

The next point he should like to mention was with regard to the second part of the motion (Clause B). It was quite possible that the Commission would not listen to the claim, and might not give a registrable degree; but he undertook to say that if no uncertain voice went forth from that meeting that a degree was desirable, and that it should be registrable, it would have great weight with the Commission. Meanwhile he was in a position to say that there was another solution to the question which appealed to some who were interested in dental education. It had been suggested that the separateness of dentistry on its own line had appealed to certain men interested in professional education, and they had taken the view that there should be a degree or degrees in dentistry, and that the Commissioners might treat the dentists very much on the same lines as the engineers. The engineers had applied to the Commission, not for a degree of Bachelor and Doctor of Engineering, and they had been granted the degrees of Bachelor and Doctor of Science, and those degrees in Science would be obtained by a curriculum, specially fitted to their needs, and which a special Board appointed by the Statutory Commission would draw up. With regard to dentistry, it might be reasonably hoped that if they desired to have a university recognition it would at least take that line, viz., of degrees in science with a curriculum specially constituted to the needs of dentistry.

With regard to the curriculum he thought he need say very little. In the proposition which had come from the Metropolitan Schools they entered into the subject of what sort of curriculum they would advise. It was not the business of the Statutory Commission to have anything to do with the formation of the curriculum either of dentists or of engineers. What they had the power to do was to state how far any profession, and what professions, should be recognised, and they had the power then of appointing the first and original Boards of Studies, and it would be left to those Boards to draw up curricula which would be adequate for the new degrees. At the same time some had thought it well to advance before the Commission that there was a side of dentistry which had not been developed to the same extent as the other side, viz., that part known as mechanical dentistry. Therefore, some of us ask for a separate and distinct course of study and examinations as well as a special degree; not from any desire to separate ourselves from the Faculty of Medicine, but because it seems to us a necessary corollary of the fact that dentistry has already been granted definite State recognition as such, that it has a separate register, and separate and distinct schools, a separate and distinct periodical literature, and a separate and distinct rational association. Nor is it our desire to diminish the amount of medical study in the curriculum, since we specially advocate the addition of biology, pathology, dental materia medica, and practical bacteriology as necessary additions to the present curriculum. But, on the other hand, we do strongly desire a larger and better education on the scientific and technical side by including practical physics and mechanics and applied dental technics (*i.e.*, mechanical dentistry).

Nearly twenty years ago Sir John Tomes wrote :—

"It is one thing to know the scientific principles of an art, but it is quite another to carry them into effect. This requires an amount of skill of hand which can be attained only by long and careful practice under competent teachers. The fingers must become unconsciously obedient to the will; they must follow it automatically as the fingers of the skilled pianofortist execute the mental reading of the work he is playing, or as the hand of the sculptor produces the form the mind has conceived. Short of this unbidden obedience of hand, the performer would not be an amateur, and his professional life one long apology, a life of words in the stead of work. It will be admitted by all that skill of hand can be attained only by long practice, and few will contend that one time is as good as another for the training.

"There is no reasonable ground for doubt that the young hand develops automatically in the direction of the exercises, and acquires thereby a power in that exercise to which the adult seldom attains. These facts have an important bearing upon the question of time at which the dental student should proceed with his practical educations; for the skill needed by the dentist in the beneficial exercises of his calling is inferior to none other.

"To devote the days of our youth to the acquisition of knowledge we do not intend to exercise, to the exclusion of knowledge by the exercise of which we propose to gain our bread, is, I contend, a very grave error.

"My strong advocacy of the special must not be, however, interpreted as indifference to medical qualifications.

"In reviewing the task imposed on the student, it may be asked whether I have not overstated the amount of special training needed to ensure the acquisition of the necessary manipulative power. I should answer no, with all the emphasis of which I am capable. For I contend that a high degree of skill of hand is absolutely necessary to self-respect, and that self-respect is necessary to that professional rectitude without which personal comfort in practice would be imperilled, and professional status would be but a shallow fiction."

After more than a quarter of a century's experience it is surely time to consider what would constitute the best kind of dental education.

Dentistry, even more than surgery, is essentially a handicraft, and we deem it better to develop it on these lines and to avail ourselves, not only of all that medical and surgical science can give us, but other arts and sciences; hence we deem it an advantage for it to be considered not as a mere branch of surgery but as a separate thing needing a curriculum of its own.

The question was a very important one, and he had no hesitation in saying that he had given somewhat of an example of the practical bearing of it in his own life. He had had the opportunity of choosing for himself either the higher dental education or taking the medical diplomas. In order to do certain work in a definite direction, he was able to develop partly in the science school, partly in the medical school of the University, in a way which he could not have done if he merely pursued his studies with the object of taking a medical and surgical degree. He had been responsible for the training of others, and he advised the young men for whose training he was responsible that they should devote three solid years to the arts and sciences applied to mechanical dentistry, going into the engineering shops at the University and there learning, first of all, the principles of mechanics. He believed it was desirable to see that kind of education carried out further. It was unfair to say that the dental profession were desirous of separating themselves more than they were already separated from the medical or surgical profession. They proposed to increase the amount of study, and would do it; but at the same time they were conscious that there were other lines of development, and they asked to be free to develop on those lines as well.

That was a historic day in the future of the profession. It was a time when the members had an opportunity of expressing a wish with regard to their own future. They had long spoken and long discussed the matter, and they were thus suddenly and unexpectedly given a voice in the obtaining of it. He could not but feel that their decision was really of a momentous character. The subject was now under consideration by the Commission, and the Commission had got a great many other duties to perform. Rumour had it that they were in great difficulty with regard to the question of medicine and surgery, but the dental question would be relatively a simple one, especially if a candid expression of their opinion and desires went forth from that meeting. The time was limited. It was now a question, he thought, that did not demand any further consideration with regard to principles. They were sufficiently educated in the Association to say which line they were going to take. Some, believing they were doing their best for their boys, put them through the medical schools; others who believed in the other line devoted them entirely to dentistry. Now the time had come when they had the opportunity of declaring for a higher education and the higher diploma, by developing on the dental side rather than on the surgical side of their profession.

Mr. **Gaddes** was prepared to second the motion with some reservation. Clause A he seconded most heartily, but with regard to clause B, he should like some definite information as to what it meant. Clause C naturally followed upon Clause A as the best method of carrying out the curriculum required. With that reservation in connection with Clause B, he seconded the motion. The question was one which he had thought, spoken and written about for more than thirteen years. He felt that the present opportunity was one which must be seized now or never. Eleven years ago four Branches of the Association petitioned the Representative Board to take advantage of the opportunities that were then existing to formulate the requirements, and to further the establishment of University degrees in dentistry. The Scottish Branch sent a special resolution urging the Representative Board to take in hand, and make representations to the then Scottish Education Committee, with regard to the formation of degrees in dental surgery in connection with the Edinburgh and Scottish Universities. Nothing was done, and the Representative Board, in their wisdom, allowed that opportunity to pass. Why should not the dental profession have the opportunity of acquiring degrees from a University as well as theology, science, arts, laws, literature, and so on? If they aspired to meet the requirements of the day, why should the dental profession shrink from asking the University to grant such a recognition, as the highest education seemed to require? He asked whether Clause B virtually meant the separation of dentistry from the medical profession.

The **President** said it did.

Mr. **Gaddes** asked whether it meant practically the re-establishment of the state that existed in the dental profession at the time the College of Dentists was founded. If it meant that, he did not second the clause, but if it implied further progress as a speciality of medicine he seconded that part of the resolution also.

Mr. **Cunningham** said that, so far as he was concerned, he was perfectly willing, if a strong vote were passed on the question, to delete Clause B altogether.

Mr. **Coxon** said he was strongly in favour of bringing forward the dental degree as far as it could possibly be done. He, for one, should very much object to see the Licentiate in Dentistry severed from his brother, the member of the College of Surgeons. He thought it was essential that those things should be always together. It was all very well to compare an engineer with a dentist, but the dentist and doctor were very much alike, only practising different parts of the same profession, and he did not see how the one was going to be separated from the other.

Mr. W. H. **Dolamore** said that Mr. Cunningham had referred to the action which the London Schools had taken in sending a petition to the Commission, which was now sitting. The impression Mr. Cunningham gave was that the petition sought to enforce on all candidates for the degree, a medical curriculum, and not a dental curriculum. He spoke as if it were to be the old thing over and over again of the Membership of the College and the L.D.S. Personally he was in favour of a degree. Although, perhaps, to his way of thinking, it came a little too soon, yet the opportunity should be seized. The petition sent in by the London Dental Schools did endeavour to raise the status of education in dental matters. It included many of the subjects which were mentioned under Clause "C" in the motion before the meeting, but those subjects were put down in the motion as if they were not included in the medical curriculum. They were included, and if a student had to follow the curriculum and to pass the examinations which were urged in the petition sent in by the Schools, it seemed to him that Mr. Cunningham's idea would really be carried out. Therefore he could not understand why special stress should be laid on the second position of Clause "A," on a curriculum and examination different from that of medicine. They could not be different from that of medicine up to a certain point; they were an addition to some of the medical examinations. It was no slur upon the dentist that he was associated with the medical student up to a certain point; and he was not a better dentist because he was separated from the medical student up to that point. He was in favour of a mechanical training, and he thought that much which had been urged about the difficulty of getting a medical qualification was altogether silly. Each man had the power in his own hands to earn his living if he had done his apprenticeship as he ought to have done it, and if a higher degree was to be started under the impression that it was too difficult to obtain the double qualification, the same difficulty would not be obviated, but would be again encountered. If it was difficult to obtain the double degree it would also be difficult to obtain a higher dental degree. A great deal of the argument which Mr. Cunningham had used in the first part of his paper did not seem to apply to the present question. They all supported a dental degree, but he did not think they wanted to separate themselves from medical knowledge. A tooth would always remain a part of the human body. His objection to Section 2 was that it tended to give the idea that they were not satisfied to run with the medical profession, or the medical course of studies up to a certain point. It seemed to him that all Mr. Cunningham desired would be obtained by sending in a petition in which the second paragraph in Clause "A" was eliminated. He did not see the use of including the subjects at the end, but still that was perfectly immaterial, but he did think to include Paragraph 2 was to take up the wrong line, and therefore he moved as an Amendment "That Paragraph 2 of Clause A be eliminated."

Mr. STORER BENNETT asked whether Mr. Cunningham wished in his scheme that the student should come under the New Teaching University scheme, or merely that there should be a new degree granted in dentistry on the lines of the University of London as it at present existed.

Mr. CUNNINGHAM said he had no scheme. The question was that a new University was going to be formed, and they were going to appoint a Board of Studies who would decide the curriculum and the details.

Mr. STORER BENNETT said that all he wished to point out was that there were two schemes before the University. There was the scheme of continuing as at present, when a man could get his education in any part of the country he chose, and go up for an examination; but if a new degree, as suggested, was granted, he felt sure that there would never be the smallest mitigation of the difficulties of the examination or reduction of the high standard at present existing in the University of London. If they were to have a degree in dentistry coming under the new scheme of the Teaching University of London, he would point out that no students would be admitted for examinations under the scheme unless they resided in London, or within a certain statutory distance from London, and therefore the new degree could not be one granted for the whole of the kingdom or even for the whole of England.

Mr. DOLAMORE would alter his amendment to "That the sentence in Clause 2 'With a curriculum of examinations different from that of medicine, though taking in some medical subjects,' be deleted."

Mr. H. LLOYD WILLIAMS said if Mr. Dolamore would accept a slight alteration and add Clause 3 to Clause 2 after the words "special title," he should be happy to second his amendment. He thought the two things would read better together in the one clause.

Mr. DOLAMORE had no objection to that course being adopted.

Mr. H. LLOYD WILLIAMS seconded the amendment.

Mr. Hope said that, seeing the confusion which seemed to arise from the amending of some of the clauses, it might be possible for Mr. Cunningham to move a resolution in as few words as possible, so that it might be understood and seconded.

Mr. G. Richards agreed with what Mr. Dolamore and Mr. Bennett had said with regard to the importance of keeping the present dental diploma before the public mind.

Mr. Cunningham said he might clear the way by accepting Mr. Dolamore's amendment.

The President said the resolution as it then stood read as follows:—"That dentistry should be granted a degree (or degrees) or some like recognition by the New Teaching University of London. That the degree (or degrees) should be a separate one in dentistry with a special title. That such degree (or degrees) should be registrable in the Dentists' Register by the General Medical Council. That a Special Board of Dental Studies be constituted to formulate and regulate the appropriate curriculum and examinations, and that it be a recommendation to such Special Board to increase the scope of the present dental curriculum by including such subjects as Biology, Practical Physics and Mechanics, Applied Dental Technics (Mechanical Dentistry), General Pathology, and Practical Bacteriology."

Mr. J. Smith Turner said he had listened with much interest to what his friends Mr. Cunningham and Mr. Gaddes had said. Mr. Cunningham appeared to have the idea that the dental education should be revolutionised.

The question was not a new one, and it had scarcely grown out of the exigencies of dental education, for it had been more or less cultivated. It was a very remarkable thing that the state of education which existed now was the outcome of the long and anxious consideration of Sir John Tomes and one or two others, and yet Sir John Tomes was largely quoted in favour of the changes which Mr. Cunningham sought to bring about. There seemed to be some inconsistency in this, and was open to suspicion. The position of dentistry now—and it was a position which he hoped it would always maintain in its integrity—was that a man was a dentist by virtue of his L.D.S., and that was what he thought it ought to be. But if a man liked, by any effort of will, to take a University degree, that was another matter. What was required was a man educated for his profession without any trammels. If a dental degree was established there would be no option but to take that degree as well as the L.D.S., because a man would be in an unfavourable position if he did not take it. The time and expense required to take the L.D.S. were quite as much as the British public would ever give back in return. A professional position was paid for in money and in time, and a man earned his livelihood by the expenditure of his skill and time; but if the degree was established it would mean a much more extended preliminary examination than was required for the L.D.S. If anyone thought they were going to get a London University degree easily, they would find that they had made a mistake. It might suit other countries to issue University degrees cheaply, but we had not arrived at that yet. He was utterly opposed to the whole thing, even to the Amendment. Unless a united front could be presented in asking for the degree the Association would meet with no consideration whatever; and it was impossible to get a united front. Moreover, he objected to the continued girding at the men who had taken an additional qualification. It reminded him of the fable of the fox that lost its tail, only it went a little bit further, for in that case the fox once had a tail, but in the present instance the gentlemen who objected to men having additional qualifications of a medical character had never acquired them themselves, and so were quite unable to judge of their value. If a man cared to take an additional qualification in science or a University degree in science he should be the very first to admit that he had done the right thing; and if he took a qualification in medicine or surgery he should say he had done still better. If a man could not get additional qualifications he regarded him none the less as a colleague and a brother practitioner. He did not think the motion before them was desirable and, as far as he was concerned, he would like to move a direct negative to it.

At this stage a letter from Mr. Sidney Spokes was read, expressing his regret at being compelled to leave the meeting that morning, and protesting against Mr. Cunningham's resolutions. He considered that the proposed divorce between medicine and dentistry was a retrograde step, undoing a great deal of the good hitherto done by the British Dental Association.

Mr. CONSTANT considered that the motion must affect the younger members of the profession more than the older ones. The first thing that appeared to him in considering the whole question was that it was not a matter of clauses but of principle. The real question was whether they should adhere to the lines that experience had shown were the right ones, or be misled by theories with no experience to support them. The Association was 21 years old, and to launch on a new career might be a very dangerous thing. What were they asking for that they had not already got? Was it all a question of title? Some of the members of the dental profession called themselves doctors when they had no medical degrees even now; others, who had earned medical as well as dental titles by hard work and good work, call themselves plain "Mr.," and the public would soon be learning that the adoption of the title "Dr." was largely made by those who were not entitled to it, and the public would understand that the title of "Dr. of Dentistry" was synonymous with the title of "quack.'

Personally he objected to approaching a young, untried university in the manner suggested by the motion. The medical profession had made many mistakes, and it was quite possible that the new university might be a mistake. He thought the younger members should certainly hesitate before jumping with Mr. Cunningham over the hedge when they could not see what was on the other side of it. If they were dissatisfied with the L.D.S., let them endeavour to get it improved, but he doubted very much whether, on the surgical side, at any rate, it could be improved. He believed that the late Sir John Tomes would have been one of the first to object to the present proposal. It was a significant fact that the agitation about higher dental degrees came from those chiefly holding the L.D.S. only. Members would have an opportunity of disproving his statement if they could. He did not mean that the L.D.S. was not a good examination or an adequate examination, but if there were any points in which the L.D.S. examination was a weak one it was probably just in those points that the medical curriculum lent support. Otherwise he did not understand how the silence of those who had passed through the medical curriculum could be interpreted. He did not like to go into personal matters, but, as Mr. Cunningham had brought his life history into the question, it would be interesting to know whether he took his M.A. with the idea of improving his condition with regard to dentistry and whether he considered, by so doing, his energies would be better directed than if he had taken the F.R.C.S. or the M.B. In conclusion, he advised that it should first be seen what the London University was going to do for the medical profession before asking the Commissioners to do anything for dentists.

Mr. J. SMITH TURNER said he would move as an amendment "That the Honorary Secretary of the British Dental Association be instructed to take no further action in the matter of approaching the London University Commissioners than he has already done."

Mr. F. J. BENNETT seconded the motion. He said that just lately there had been a reform made in the course of studies for the examinations of the L.D.S., and it had only just come into force. Therefore it was impossible to know how it would work. "Go slowly and go surely" seemed a good maxim, and he advised seeing what course the new University was going to take before proceeding further.

Mr. J. FOTHERGILL did not see any inconsistency in the quotations from Sir John Tomes, and therefore supported Mr. Cunningham's resolution as it stood before them.

Mr. REINHARDT failed to see what harm could be done, as a man must surely be the better for taking the higher qualifications.

The Amendment was then put and carried.

Mr. DAVID HEADRIDGE thought a poll should be taken on such an important question.

The Amendment was submitted as a substantive motion, and on a division being called the motion was carried by 32 votes against 22.

The Meeting then proceeded to pass the following votes of thanks, viz.:—To the Mayor and Corporation of Ipswich for the use of the Town Hall; to the President and Council of the Eastern Counties Branch, Mr. and Mrs. Fenn Cole, Mr. and Mrs. Penraven, and to the President of the School Dentists' Society for the various hospitalities afforded to the Association; to the retiring Treasurer, Mr. W. Hern; to the Readers of Papers, and Demonstrators; to Mr. Norris Snell (Local Hon. Sec.), and to the Honorary Secretary of the British Dental Association for their services in the organisation of the Meeting.

The Minutes were then read and confirmed and the Meeting closed.

During the morning the following demonstrations were given in the Public Hall:—

(*a*) "The Uses of a New Crown Impression Tray;" (*b*) "How to insure Accuracy of Adjustment and Occlusion of a Finished Crown," by Mr. W. A. Rhodes.

"Röntgen Ray Work in the Mouth," by Mr. A. F. Penraven.

Mr. Vernon Knowles: (*a*) "A New Metal for Polishing Plates;" (*b*) "Mr. H. Hordern's New 'Handy Press';" (*c*) "Further Improvements in the Composition Swaging Flask."

"Coronal and hyper contour Amalgam Fillings," by Mr. J. C. Wing.

"A Home-made Nose-piece for prolonging Nitrous Oxide Gas Anæsthesia by Alfred Coleman's Method," by Mr. R. P. Lennox.

"The Prolongation of Nitrous Oxide Gas Anæsthesia by means of a Mouth Tube, being a modification of Mr. Coxon's method," by Dr. McCardie and Mr. Thompson Madin.

"The Prolongation of Nitrous Oxide Gas Anæsthesia," by Messrs. W. J. Stephens and D. E. Caush.

A paper was also read by Messrs. W. Booth Pearsall and G. M. P. Murray on "Brittle Platinum Pins in Porcelain Teeth."

Accounts of the papers and demonstrations will appear in the Journal in due course.

THE ANNUAL DINNER.

THE Annual Dinner of the Association was held in the Town Hall on the Monday evening, May 22. Mr. J. Howard Mummery, the President, occupying the chair, and presiding over a gathering of a large number of members and guests, amongst whom were:—

The Mayor of Ipswich (E. P. Ridley, Esq.); Mr. J. Fenn Cole (Chairman of the Local Arrangements Committee); Mr. E. Packard, jun.; Mr. W. A. Hunt, Yeovil (late President); Dr. R. K. Casley; Mr. F. Canton; Dr. A. T. Wood; Mr. R. H. Woodhouse; Mr. A. F. Penraven; Mr. S. O. Eades and

Mr. Branford Edwards; Dr. W. A. Elliston; Mr. J. Smith Turner; Mr. T. R. Elkington; Mr. Storer Bennett; Mr. S. Spokes; Dr. Walker; Mr. W. H. Ash; Mr. G. S. Elliston; Dr. E. Hollis; and Mr. F. Woolnough (Curator of the Ipswich Museum).

The toast of "The Queen" having been proposed by the PRESIDENT and duly honoured, Mr. J. FENN COLE proposed "The Mayor and Corporation of Ipswich." He said: We are quite accustomed to receive many kindnesses from the Mayor, but on this occasion we are deeply grateful to him. The success of this meeting is mainly due to his generosity in allowing us the use of his official residence, and I am sure we all feel deeply grateful to him. Those of you who have had time to look round the town and examine into our various Institutions will, I think, give us credit for being a little up to date. This, of course, largely depends upon our Town Council and upon our Corporation, and it shows, I think, that we have men in their proper place, and men whose motto is Progress. Our Educational Department is as perfect as most towns of our size, and I think our commerce is quite up to the mark in comparison with other places. We do not make such a bad show. The Corporation are, I think, quite equal to any town of its size, and I have great pleasure in proposing the health of "The Mayor and the Corporation of Ipswich."

The toast was drunk with acclamation.

The MAYOR OF IPSWICH (Mr. E. P. Ridley) rose amid cheers to respond. He said: If I did not feel that I were replying on behalf of the Corporation as well as myself I should be inclined to blame you for want of judgment in drinking my health with musical honours before you have had an opportunity of knowing anything about me, but as that toast is mixed with the toast of the Corporation I thank you for the very hearty way in which you have drunk it. I can assure you on their behalf that I believe it is well received. The inhabitants of Ipswich look upon Ipswich mainly as a good business town and a great business centre. There may be—I think I might say there must be—some other attractions in Ipswich, as you are only one out of six societies that propose during the present year to hold their annual gatherings here. If we were in some other town I might try and describe what the benefits of Ipswich are which prove such an attraction to societies of this kind, but you have chosen a far more successful course—you have made up your minds to come and see for yourselves. You will be able to judge for yourselves, and therefore it is not necessary for me to say another word on the subject. I can only hope that the result will be satisfactory, and that you will take away pleasant recollections of your visit to Ipswich, together with the more substantial results which you always take away from a meeting of this kind. You will bear in mind that the local authorities have a considerable amount of power and a great many resources at their command, and I cannot help regretting, in connection with your meeting that the local authority was not consulted with regard to the weather. I do not know what would have happened if that had been done, but the weather is a matter which requires a great deal of looking after. The Committee that have had charge of the arrangements for the meeting here have allowed this matter to drift on, and you know the result. I can only say that all those who are here to-night will, I am certain, feel that we have found out a way in which we can drive even bad weather out of our minds. There is a class of men who think that the whole duty of man is to criticise, and, criticising such a meeting as you have here, they would say that it is merely play. Well, if that were true—it is not true—but even if it were true——

> "Why should a man whose blood is warm
> Sit like his grandsire cut in alabaster?"

A man who works and plays is always a better man than a man who does nothing but work. You have the benefit of meeting each other, those who are interested in the same profession as you are; you have the benefit of listening to the most recent work and discoveries of those who are interested in the same science as you are; you have the benefit of seeing demonstrations by the men who are most up to date in the matter in which you are concerned in your daily occupations. And God forbid that anyone should object to anyone in your profession being as efficient, as painless, as thorough and as expeditious as possible in their work. I have no doubt that you all here know the well-known answer of the little girl who was asked to say what a lie was. She said it was an abomination to the Lord, but a very pleasant help in time of trouble. I have been wondering how much of that answer could be applied to members of your Association, or, perhaps, I should say how little could be applied to members of your Association. I believe everyone would say while they are in health that a dentist is an abomination, but they would also equally be prepared to say that he is a help in time of trouble, but do not know whether you would find anyone who would be prepared to say under any circumstances that he is a *pleasant* help in time of trouble.

It is a pleasure for your Society certainly to feel that as the science grows, more of your work, and more of your energies, are spent in preventing suffering, and less in merely doing away with it after it has arisen; and it no doubt relieves the minds of many of you that you are not always working, and in future less will you be continuing to work, in the presence of suffering and pain; your duty will be more to prevent than to allay. This, I think, coupled with the painless character of your operations—which we always read about—leads us to hope that in the very near future we may all be able to say with the greatest possible sincerity that you are a very pleasant help in time of trouble. I am not a surgeon, and I am not a dentist, but in my own profession I am in the habit—for a consideration—of giving advice, and in this case I have had my consideration both on Saturday night and to-night, and therefore I should like to have the opportunity of giving you a word of advice which you will be at liberty to make what use of you wish. I note that the doctors in the seventeenth century gave their patients pulverised mummy to prolong their life. I give you that on the authority of Laing's "Myth, Ritual and Religion." Now, sir, those mummies had teeth, the teeth were of no use to the medical profession of that day and they are still on hand. Is it not possible that members of your Society may be able to grind up those teeth and make the same use of them that doctors did of the rest of the bodies in the seventeenth century. I leave that, gentlemen, for your consideration when you get back to your studies; please do not mention it to me any more. Well, Mr. President, I trust that all your members will carry away the pleasantest recollection of this meeting in Ipswich, and also a great deal of beneficial information which they will be able to apply in the service of an aching public. I can only thank you on behalf ot the Corporation and myself for the kind way in which this toast has been proposed and received, and I can assure you on my own behalf that the recollections of the visit of the British Dental Association to Ipswich will always remain of the very pleasantest.

THE BRITISH DENTAL ASSOCIATION.

Dr. W. A. **ELLISTON**, in proposing the toast of the evening, said: Mr. President, Mr. Mayor and Gentlemen,—It is my privilege to propose the next toast. I ought to explain to you that I stand here in the place of a gentleman who would have been much more acceptable to me, and I am quite certain much more acceptable to you—I mean my friend, and I am sure the friend of every man in this room, the distinguished surgeon, Mr. Luther Holden. Mr. Luther Holden's health unfortunately prevented him from being presen here to do a duty which I am sure would have been a very great pleasure to him. I stand here as his representative mainly, I believe, because I am one of the senior members of the profession of his district, and because for nearly thirty years I have been surgeon to the East Suffolk and Ipswich Hospital, and I am at the present moment the senior surgeon. It gives me very great pleasure, as representing the medical profession in this district, to welcome you to Ipswich this night, and to thank you for the honour you have conferred upon East Anglia by selecting East Anglia as the place of your annual meeting, and Ipswich in particular. Gentlemen, this toast is a very important one—I think I might venture to say that it is the toast of the evening, and I should have been very chary in undertaking to lay before you the objects of this toast if I had not been assured that whatever I left out in proposing it to you would be certain to be supplied by the distinguished gentleman, Mr. Smith Turner, who is to reply to the toast. I have been thinking over this subject, and since I was placed in the position of being asked to propose the toast to-night, I have been particularly struck with what I read in the *Lancet* twenty-three years ago, that at that time there were scarcely fifty gentlemen practising dental surgery in the United Kingdom who had a legal right to do so. Not but what there were many of them most competent men, but they had no legal qualification for that position. In this year, 1899, I am told there are nearly 5,000 practitioners upon the Register of Dental Surgeons, and that more than 1,000 of that 5,000 are members of this great British Dental Association which we are welcoming here to-day. My recollection of dental surgery in this district, extending now over many years, takes me back to the time when there were but two firms of dental surgeons in this town, the one was Mr. John Tracy, the father of Mr. Nathaniel Tracy, who was then associated with him many more years ago than I like to admit to-night. They had the largest dental practice in this town. The other gentleman was Mr. Gattrey, who had not a large practice, but whom I remember, when I was a student at the East Suffolk Hospital, as an excellent skater. My recollection also carries me back to my esteemed friend Mr. John Fenn Cole's predecessor, the late Mr Leigh, who was a most courtly gentleman, and moreover a member of the Royal College of Surgeons of England. Those two qualifications rapidly resulted in a most large and lucrative practice, and from that time to this the dental profession, in this town at all events, has been an increasing profession, and the social status of the profession has advanced collaterally with its professional reputation.

At the time I am speaking of, the dentistry of this country was mainly carried out—I may say down to the end of the middle of the present century—

by the general practitioners of this country, more or less efficiently, and although the special profession of dentistry, as a specialisation in surgery, had hardly then become established, there were even at that time, in the early sixties, for instance, men of the greatest professional attainment and the greatest scientific distinction, engaged in the profession of dentistry. To illustrate what I mean, I may mention that at the time I entered as a student at Guy's Hospital, in the early part of the sixties, the two dental surgeons who were then attached to that hospital were both of them Fellows of the Royal Society, which showed that they were gentlemen of the greatest scientific attainments, in addition to their professional abilities. Well, gentlemen, such was the condition of the practice of dental surgery at that period. Then came what always seemed to me to be one of the most extraordinary circumstances in the medical history of this century, that the dental profession evoluted, as it were, from comparative insignificance into the present scientific dental surgery and the present scientific and skilful dental surgeon. I think there is nothing more marvellous in this century in its medical history than the suddenness and completeness of the evolution thus effected. In the very able and distinguished address which your distinguished President gave the other day—I read it with great interest—I noted that he attributed that to the discovery of anæsthetics, and to the discovery, or rather the introduction, of the forceps by that very distinguished dental surgeon, Sir John Tomes. I venture, sir, to say —although I admit that these circumstances may have largely developed the evolution of dental surgery—that I do not myself think that they were the only circumstances to be taken into consideration.

I believe, myself, that the evolution of dental surgery has been coincident with the large development and expansion, upon scientific principles, of every surgical principle, and upon the independence of the advance in any one branch affecting the circumstances of the other. I mean that the great evolution in dental surgery is due to that wave of public opinion—or rather of professional opinion—which passed over the medical profession in this country between the fifties and sixties, which led to such operations as the excision of joints and the saving of any portion of a limb, rather than sacrificing by amputation the limb itself. I believe that that and other advances in surgery led equally to the consideration of advancement in dental surgery, and led people to think, and the profession to think, whether it was always necessary to sacrifice the teeth, and whether it might not be possible by preservative surgery to prevent the extension of disease, and to prevent the sacrifice of teeth as a more scientific principle. I believe that all those circumstances together have succeeded in evoluting the present high position of dental surgery in this country, and vastly improved the status and the condition of the men who now exercise the practice of dental surgery in England. It was that which led thinking men in the profession, and out of the profession, to the belief that it was necessary; the new order of things required a man of higher skill, a man of larger scientific attainments, a man who to acquire those scientific attainments required more cultured skill, more technical development, and a larger observation of practical cases, such as are now required before you can obtain the licence to practise surgery in this country. Well, sir, by these opinions, within and without the profession, that great landmark was obtained in 1878, the Dental Act, which has placed your profession on a secure basis; and the public now know whom they may trust and whom they have reason to doubt. I think we have to be thankful that the legislation brought about by the Dental Act has passed into the hands of the General Medical Council of this country. That Council has the conduct of the professional examinations and the responsibility for seeing that those examinations are properly carried out. I venture to say that anyone who understands these matters, who will look into the requirements of the prescribed course of study for the various examinations and the various ordeals which every student in dental surgery has to undergo after registration, will come to the conclusion that in this respect anyone who can obtain the dental licence of the Royal College of Surgeons of England must be well prepared to practise his profession with advantage to the public, and to all concerned.

I have so far spoken of the aspects of the dental profession in this country, and I have no doubt that you would wish me to say something on the subject of the toast before me. I have now to come to the advantages of the British Dental Association. I hope that this British Dental Association will become the Parliament in this country of all those who practise dentistry, because the Association is independent of all licensing bodies, and it will bring all who have studied dentistry, who have obtained their qualifications, to meet together and discuss those things and those positions and circumstances which are of consequence to the whole dental profession. I imagine that this Association is formed very much on the lines of the great British Medical Association and its aspect to the medical profession of this country. As a very old member of the Council of the British Medical Association, I venture to say that it is of the greatest importance to you in the management of your Association that you should remain as you have begun, on a sound financial basis. I congratulate you upon the soundness of your financial basis, and on the conduct of your Journal, and the large income you are likely to derive from that. At the present moment it may not be so successful, but as the number of members increase you will find in future that your Journal will be a large source of income. I noticed that of nearly 5,000 members of the dental profession in England at the present moment there are about 1,000 who have the honour to be members of the British Dental Association. I think it ought to be understood that it is a great honour to join your Association. I am told by those who are your Governing Body that you do not admit everyone simply because he is legally qualified to practice, as a member of your Association, and I should like to advise you to continue on those lines, that it should be an honour and an ambition to everyone who is legally qualified to be registered as a dental practitioner to be further a member of your British Dental Association. I watched with great interest the scientific papers that have been read at this meeting. I think you yourselves can hardly realise the importance of the discussions that take place at these meetings; you can hardly realise the influence that you bring to bear on public life in England by the report of your proceedings. The whole profession is strengthened by the assistance of those who come from a distance to support their friends. I heard it wittily said at Edinburgh that Robinson Crusoe was greatly strengthened by the presence of his man Friday; so the members of this Society are greatly strengthened by the practitioners who come from every part of England and Scotland and Ireland. Well, sir, I will not detain you much longer, but I will just venture to say that there are one or two matters on which your Association may dwell with great earnestness. One of those is that at the present moment you have no legal representative on the General Medical Council of this kingdom. You have one, I admit, indirectly—Mr. Tomes—but I believe he owes his seat on the Council to the nomination of the Crown. I think that is a position which ought not to exist. I hold very strongly that every licentiate of a Royal College has a right to participate in the government of that college, and particularly he has a right to vote for his own representative on the General Medical Council of this kingdom. I would further say that as a most important section of the medical profession, the dental surgeons of England have a right, apart from the vote that I think they should exercise on behalf of their own college, to have a direct representative, and they should petition the crown for a direct representative to represent them on the General Medical Council. I merely throw out these observations because these are subjects which have been interesting to the British Medical Association for many years, and for which I have for a great many years striven in great earnestness. I shall only make one more appeal if you will permit me, and that is to the generosity of the dental surgeons in England. The dental surgeons of England have exercised a great influence over the medical practice of this country for a number of years, but their practice has been largely among the richer classes of society. I would appeal to the dental surgeons of England, and particularly to senior members of the dental surgeons, that they should, whenever they can, whenever they are requisite, give their services to hospital and dispensary work in order that the poor of this country may derive the benefit of your great skill, which tends to lessen human suffering, and in many instances to save human life. I beg to propose this toast, and to connect with it my friend Mr. J. Smith Turner.

Mr. J. SMITH TURNER, who was most cordially received, responded in the following terms:—Mr. Chairman and Gentlemen, like some of our friends last night, I am embarrassed. I am in a state of great weakness, because I have not been "fortified by all the rites of the toast." You have not drunk my health or the health of the Association as I should have liked. Perhaps it was some misdirection on the part of my friend, but it is very sad for me to stand up and not to have heard the health of the British Dental Association drunk with enthusiasm.

After the kind and genial speech which I have heard to-night, I find it rather difficult to make a response such as I should like, and I also feel rather diffident in disagreeing with some of the remarks which have come from the generous proposer of the toast. He was pleased to say, in accounting for the change that has taken place in our profession, educationally and socially, that the opinion of the British public had had a good deal to do with it. Well, my experience was, that the opinion of the British public was quite the other way. I have very small respect for the opinion of the British public in professional matters. I could go still further, and say that if our friend had referred to that great medical publication, the *Lancet*, he would have found there was no more bitter opponent to the Dentists Bill before Parliament than was the *Lancet*, twenty-three years ago. I can also show that there was no more bitter opponent than the *British Medical Journal*, and but for the enlightenment of the leaders of the medical profession, and of the generous behaviour of the Royal College of Surgeons long before the Dentists Act was in Parliament, we should never have achieved what we did. But as for the medical profession generally, and as for the medical journals, and as for the British public, I have not a bit of thanks to give them. We had to ram it down their throats—much less look in their mouths—before even the members of Parliament thought such a thing as a Dentists Act was necessary. Happily, the Royal College of Surgeons, induced greatly, I think, by the persuasion and clear reasoning of our great leader who has passed away, Sir John Tomes, had about twenty years before the Dental Reform Committee was established, by an act of their own generosity, procured at the expense of £800, an addition to their Charter, which enabled them to give a dental licence.

That was permissive legislation, of course. They appealed to the dental profession and to those about to enter it to come forward voluntarily and take the dental diploma by examination. And when we went to Parliament one of our strongest arguments was the fact that a large number of the members of our calling had voluntarily subjected themselves to the expense of the curriculum and to the tortures of an examination by the Examining Board, established by the Royal College of Surgeons. There was great opposition also on the part of some of the Council of the College of Surgeons to the establishment of this curriculum, but these are things which are not to be regretted. Perhaps if we had got the thing too easily we would not have appreciated it as much as we do, and if we had not had the spur of opposition in our ribs we would not have worked so hard as we did to secure what we wanted. As it is we did succeed, and one of the results is the establishment of this British Dental Association, of which our friend has spoken so kindly to-night. That Association, I may say, for the information of our visitors, is based, as was suggested by the last speaker, on the lines of the British Medical Association ; but that is only a small part of our constitution. Our great aim and object is, by dint of improving our curriculum, and improving the education of our members, to place ourselves socially and professionally on a line with the members of the medical profession. We do not mean to do so by becoming medical men. Many of our members have taken the full curriculum and distinguished themselves in various examinations. We have a number of our members who are Fellows of the Royal College of Surgeons ; we have a number who are Members of the Royal College of Surgeons ; but they have not taken those degrees for the purpose of practising medicine or surgery, but for the purpose of trying more and more to elevate the status of their profession.

There was a great fear among the medical profession, freely expressed in the Medical Council—and the late Sir Richard Quain was the one who was the mouthpiece of that peculiar view—that we would be establishing a race of half-educated surgeons and half-educated medical men, who would compete with the medical practitioners. There was never a greater fallacy enunciated by a sensible man. The men amongst us who have taken the full qualifications have not done so with any such idea, and more, they could not have carried it out if they had intended to, because when a man gives his attention to dentistry he finds quite enough to occupy all his time, either his leisure time or his working time ; and if he attends to his own profession he will very soon find that, if he tries to play the *rôle* of a general practitioner, the general practice of his student days has passed quite beyond him, and that he had much better stick to his last.

Our friend Dr. Elliston said something about giving our services to the poor. I think, gentlemen, I may say without presumption that we do. We are not so liable as the medical practitioner to be swindled out of our fees; we are not so liable to be called up at all hours of the night, and at inconvenient times called away to attend to some patient and never be paid; but still we do give a large amount of our time to hospital work and dispensary work. I myself was surgeon to a hospital for a number of years, and I went at least for ten years every morning in the week to a hospital in London, and I filled the post for about twenty years; but I did not get anything for it except the satisfaction of having maintained the position of my profession on the staff of a general hospital. I think the gentlemen who follow me will say they found the same thing. I think there are in this room several dental surgeons to general hospitals in London. Mr. Spokes, I believe, is the surgeon to the London University College Hospital. Our Secretary, Mr. Paterson, is surgeon to St. Bartholomew's. There are other surgeons; Mr. Dolamore to the London Hospital; but I cannot recall all the names. They are all gentlemen who give their services, just as the medical staff do, without fee or reward from the hospital. And, moreover, these gentlemen have no classes and no beds to enable them to take clinical students round the hospital, from whom they receive fees. They do it entirely gratuitously, so that we have anticipated the very legitimate expectation of our friend when he hoped we would give our services. We do give our services, and we hope to be able to give them more, for in many instances our services, just as our education, has had to be forced upon the authorities before they would receive them.

Now, coming to our own Association, I think that I am getting rather too old to respond to this toast as it ought to be responded to. I thought of taking stock of the British Dental Association to-night, because this is its twenty-first year and it arrives at its majority. Stock-taking is a very laborious thing, and I think I may leave it to all of you to take stock of this Association and to read back the records of the Journal of this Association since it was established, and there you will see the history of it. It is not an uninteresting history, nor yet a history without its viscissitudes. But I was also taking stock of myself, and I begin to find I am like those parcels which are taken from the shelves at stock-taking and only partially examined and beaten and blown upon to get the dust out of them and put back. I do not object to being blown upon, I never did much that would bear not blowing upon, and people do not blow upon things that will bear it. But I feel to-night that taking me off the shelf has produced very dry dust indeed, and I think it is about time I was put on the shelf altogether. I say that because I find I am more or less getting out of touch with many of my colleagues. I observe that there is a decided feeling arising or being cultivated—I do not think it is a spontaneous movement—but there is a feeling arising of dissatisfaction with the educational position of the profession as the outcome of the Dentists Act and of the administration of the Dentists Act having been placed in the hands of the Medical Council. I am not going to take a mean advantage of those strenuous advocates of the divorce of our profession from the science of surgery and medicine just now, because it would not be fair without their having an opportunity of answering. But I will say this much, that I do not think any amount of scientific education will qualify a man for our profession. Although scientific education may be very good for qualifying a man for managing a steam-engine or some other insensate article, I do not think a scientific education will qualify a man for interfering with the functions of the human body in any way whatever. He must have acquired that sympathy with suffering which is only to be acquired by contact with the sufferer, by visiting the surgical and medical cases in the wards of a hospital. If he fails to do that he may be a very scientific practitioner as far as his degrees go, but, as I said some time ago in advocating a certain course in our preliminary training, I believe the true ameliorating and mollifying influences which are required in administering to the wants of our patients will only be acquired by hospital work, dental hospital work, and general hospital work, out-patient work and clinical work in the wards.

I may pass on from that subject, and as I may not be called upon to respond to this toast again I am going to let out a bit. I may say that there is another peculiar feature in our Association which has disturbed me very much, which has been manifesting itself lately, and that is what has appeared to me to be a scramble for power. I think that is a very dangerous thing, indeed, to rise in any Association. It is not new, but it is manifesting itself more obviously, and I was very much surprised at the meeting of the Representative Board not long ago to hear an esteemed friend of mine, who is a member of this Association, and a very worthy and useful member, put forward a certain claim and backing that claim by numbers. Now, I do not think the power of numbers ought to affect us when we are discussing any matter in connection with the British Dental Association. If you begin to calculate your powers by numbers you will establish a kind of propaganda in your Association; and the Association belongs to you in the future. It does not belong to me. I am passing away and I am speaking of the Association as it may be. I say if you develop this scramble for power you develop propagandaism, and if you develop a propaganda you develop a course of conduct which is very much like the conduct of those companies that try to take possession of our profession. The law allows the company to do what the individual may not do, and if you have a propaganda you will find the spirit of that propaganda will allow what an individual simply would never think of doing; in fact, he would never venture to do it. But when you are acting under the influence of a propaganda you lose your individuality. I throw that out as a warning because I see the thing growing. I would also say further that if this scramble for power is met by an opposition scramble, there will be a revolution in our Association which will be injurious alike to the educational and social condition of our profession. Our friend Dr. Elliston has referred to evolution; that is the way true progress has been made. Look through and read the history of the French Revolution and you will find some of those heroes spoken of as if they were virtuous individuals, made so; very likely, by the power of literature. I do not believe there ever was a revolution yet that would not have come far better, and at much less expense, and more effectively out of evolution. I would remind the members of this Association who wish to make a change in our educational system that our present system is very young yet. We have only reached our twenty-first year this year. When you introduce a new action there is a great deal of time lost. The preliminaries take up a long time, the arranging of affairs takes a long time, and the working out of details takes a long time.

Now, gentlemen, I do not think we are much further than working out of details yet. But if we had been all sent back again to be re-modelled and re-shaped when we had reached our majority, what poor, weedy, feckless sort of creatures we should be now! I would therefore plead for our Association, with those who are seeking to revolutionise our educational system, to pause before they push their opinions too energetically or too closely upon this Association. There is one little evidence of evolution which I should like to lay before you before I sit down. We have had this year established in close intimacy with our Association a society, in the future of which I see immense good, not only to our profession, but to the whole community, and that is the School Dentists' Society. That Society has begun modestly and quietly, and without much flourish of trumpets. It is the outcome of a change in our manner of procedure. We had a School Committee, which did an immense amount of good, but it was over-weighted, I always thought, and it has disappeared, and this Society has taken up almost the same kind of work, perhaps on different lines. I am happy to find out that already in its short existence it has been recognised both by the military and civil authorities, and I think that is a great step in advance. There is only one other matter which, for our own sakes, I would address to the visitors present. A letter appeared in one of the local newspapers from a dignitary of the Church, calling attention to our programme, and charging us with outraging the Christianity of Ipswich. I do not know that Ipswich has any speciality in the way of Christianity, but that is what he said. I can only say if that gentleman had seen the proper programme he would not have found there was any objectionable feature in it. The programme, unfortunately, which was supplied to the Ipswich newspaper, and which it used quite legitimately in the course of a very nice article, announced certain functions. It was the card which we always send out to every member of the Association, asking him if he will be present at certain functions, and if he will have a lady with him, so that our officials may know what to expect, and how to meet the occasion when it arises. Our officials had no choice but to announce the offers of hospitality made by the local members to their colleagues. It was not the programme of this Association, and I hope that will justify us, at any rate, in the opinion of those friends who have come to dine with us to-night. I thank you, gentlemen, for this toast.

"THE MEDICAL PROFESSION."

The PRESIDENT said: Of all the professions I consider the medical to be the most important and the most beneficent, although I would not be understood, Mr. Mayor, to speak disparagingly of the law. We have all on some occasions had to call in the help of the law, and, although some of us may have thought they have, now and then, had more law than justice, what man was ever found to speak impartially when he had lost his case? I look upon a medical education as the broadest, most liberal and elevating education that any man can receive. Much is said of the value of a classical education as a training for the mind, but I think that a scientific one is quite as good and a much better training. With respect to the medical profession being the most beneficent I think there can be no doubt—the medical man is ever engaged in relieving suffering, and although in the face of disease and death he must occasionally feel his powerlessness, yet where he cannot cure he can alleviate.

Of the devotion of medical men to their work, gentlemen, I need scarcely remind you. There are innumerable instances always coming to our notice, from Ian MacLaren's Highland doctor who insisted on the consultant from

Edinburgh crossing the river in a flood, to the medical practitioner who was called in the other day to a case of phosphorus poisoning, and, finding the stomach pump out of order, attempted to save the life of the patient by sucking out the poison with his own mouth.

Of the versatility of the hard-worked medical profession I need hardly speak, for we have numerous examples of artists and literary men of good repute among them, including the greatest of English etchers, Mr. Seymour Haden.

This is the neighbourhood also of a great light in the profession, Sir Thomas Browne of Norwich, whose "Religio Medici" is a classic in our language, and whom I believe Norwich is about to honour by the erection of a monument to his memory. He was not always consistent, but men never are. What medical man takes his own medicines?

In the "Religio Medici" Sir Thomas Browne says the method adopted by nature for the continuance of the race was unworthy the dignity of man, and that the mode of propagation of trees and plants was in every way more appropriate, and yet he took to himself a blooming young bride from Ipswich and had twelve children.

Genius does not always show itself very early in the medical profession, and the aspiring student often fails to give promise of the celebrity he afterwards attains. Only last week a student was asked a question as to the bones of the nose. The student said he was sorry, but at the time that part was demonstrated at his hospital he was laid up with the influenza. The examiner said, "Really! Well, sir, were you convalescent when they got to the tongue?" Another gentleman, asked to diagnose a swelling, said it was a circumcised abscess! Well, I think these gentlemen may distinguish themselves in the future, though perhaps not exactly in the same way as they have done at present. We have many eminent representatives of the profession here to-night, and I beg to propose, gentlemen, "The Medical Profession," and associate with that toast the name of Dr. Casley.

Dr. R. K. CASLEY, on behalf of the members of the medical profession present, tendered their sincere thanks for the very hospitable manner in which they had been received. He said: I am not vain enough to suppose that my name has been associated with the toast because of any merits of my own, but rather because I am a humble member of the profession so closely associated with the science of dentistry. I am proud and glad to think there is a close union and friendship existing between the various members of our body corporate, which is a very different thing from what existed in olden days. I do not think I have ever seen it sufficiently urged how very large a proportion of tubercle is due to the neglect of dental aid, especially in cases of middle age and old age, due to that malnutrition which lies from the neglect of the teeth. I think there is a very strong bond of union between us in that matter, and that if we only impressed on our patients the necessity of attending to matters of that kind, they may be able to resist the ravages of that disease.

"THE BENEVOLENT FUND."

Mr. SIDNEY SPOKES, in proposing the toast, said he believed the large majority of the gentlemen present were already subscribers to the Benevolent Fund, and if he were therefore unable to make an appropriate, sympathetic, pathetic appeal to them he would ask them to be good enough to read the report which had been presented by the Secretary, and to scan the details of the cases there recorded which had been dealt with by the Benevolent Fund during the past year. Those who felt they still wanted some other inducement to further the objects of the Benevolent Fund he asked to read the report of what his friend, Mr. Robbins, said at the morning meeting. Mr. Robbins was really the gentleman who ought to have been put up to propose the toast. He spoke in a way Mr. Spokes could not attempt, and was able to bring the tear to the eye, which Mr. Spokes was afraid he could not do. He would not try to interfere with the digestion of so excellent a dinner by harassing those present with the sad details of sorrowful cases, but he would make an earnest appeal to them to support the Fund. There were over 1,000 members of the Association, but only 400 were subscribers to the Fund, which had been in existence about seventeen years. The Fund had a most excellent Treasurer in Mr. Woodhouse, and a splendid and an energetic Secretary in Mr. Ackery. If words failed to express what was owing to the Benevolent Fund, he was at a far greater loss in trying to convey an impression of the valuable services rendered by Mr. Ackery. No case dealt with by the Benevolent Fund escaped his notice. The only way of increasing the subscription list was by making personal application. Every member had the means of personally approaching some other who was not already a subscriber, and thus to save the Secretary and Treasurer and other members of the Executive a great deal of anxiety as to where the money was to come from to aid the deserving cases which might be expected to arise continually every year.

The toast having been duly honoured, Mr. ACKERY responded. He said he was glad he had not to speak on a controversial question ; he did not think that the position of the Benevolent Fund was likely to be assailed from any side or by any person. The only difficulty he had to deal with was the slight amount of indifference which was shown by some towards the Fund ; but, as Mr. Spokes said, if those who were subscribers to the Fund would only carry to the non-subscribers the sentiments they held he was quite sure the interest in the Fund would be very much increased. Those members who had not come in contact with the cases might take his word that there was a deal of suffering amongst some members of the profession. It was for those members he pleaded on the present occasion. The expenditure that year had been in excess of the amount received during the year as annual subscriptions, and there would have been a deficiency had it not been for the small amount of interest received on invested capital. Many persons helped the Fund whose names were not on the list, and they were wanted to come forward and help with their names as well. The benefits of the Fund were not confined to London, but to all parts of the kingdom. A very generous suggestion had been made by Mr. Glaisby, who stated his willingness to give a subscription of a guinea per annum on behalf of his wife. That suggestion was a novel one and it had already borne fruit, because several married men had already come forward and given subscriptions on behalf of their wives. He saw a great future in that. He was satisfied that in the course of a short time all the married men would be subscribing on behalf of their wives, and the man who wished to do the Fund a good turn might perhaps propose that each married man might subscribe on behalf of each child. He felt certain of the prosperity of the Fund and that its existence would be a means of relieving suffering and distress even more fully than it was at the present moment. He warmly thanked Mr. Spokes for the eloquent way in which he had proposed the toast, and those present for the very cordial way in which they had received the same.

"OUR GUESTS."

Mr. A. F. **PENRAVEN**, who was loudly cheered on rising, proposed "The Guests." He said he felt it was a very great compliment to the Eastern Branch that the members of the British Dental Association had turned up in such very great numbers to the meeting, and he trusted they were satisfied with the welcome prepared for them. He was very sorry to say that from various untoward circumstances the little part he proposed to take on himself had been, by no fault of his own, placed out of his power. They had amongst them three delegates from Paris to invite the Association to take part in the approaching Dental Congress in Paris, and he was sure they felt grateful that their French *confrères* had sent three such distinguished men as Messrs. Choquet, Sauvez, and Duncombe. But every one had made up his mind to go to Paris next year and see the wonderful things prepared for them. He thought their French brethren would be rather embarrassed by the numbers who would turn up. There was a great deal to thank Paris for, and even their *confrères* the American dentists had owed something to them. He coupled with the toast the name of Mr. T. R. Elkington and the delegates from Paris.

Mr. **CHOQUET** asked, amid cheers, to be allowed to say a few words on the subject of the toast. He said that as General Secretary of the Odontological Society of Paris, he desired to say a few words of thanks for the amiable reception given to the delegates of the International Dental Meeting of 1900. His friends and himself were very much touched by the hearty welcome, and they would try and give their friends an idea of the hospitality they had received. They would go away pleased at having succeeded in their agreeable mission. His friend Dr. Sauvez had asked him to speak as General Secretary of the Commission, to thank the members for the assistance of their powerful Association and for the naming of a national bureau. As Frenchmen they were all the more touched because it showed that differences which naturally separated for a time all great nations, were lost when they met on scientific business; then their understanding was both courteous and unanimous. He congratulated the Association on the success of its meetings, and said their *confrères* in Paris would do their best to imitate the British Dental Association and receive their visitors in a hearty manner when they came to the Congress. He hoped that the visit to Paris would leave as agreeable an impression upon those who came as this had done upon himself and his fellow delegates. In conclusion he said "I drink to the friendship of English and French dentists, and to the success of the International Dental Meeting of 1900."

The toast was drunk with musical honours and the singing of "The Marseillaise."

Mr. T. R. **ELKINGTON** briefly responded, thanking the Association most heartily for the reception they had given to the guests that evening. He expressed a hope that they would enjoy the visit and would come again at as early a date as possible.

"THE PRESIDENT."

Mr. W. H. **HOPE** (President of the Eastern Counties Branch of the Association) in proposing the toast of "The President," thought that if there was one gentleman amongst them who claimed their honour and respect it was the worthy President who sat in the chair that evening. It was known that, owing to the diffidence of their much respected friend Mr. Fenn Cole, Mr. Mummery had kindly come forward and relieved the Association of the difficulty that they were in with regard to a President. Those who were privileged to be present when the President read his brilliant address could not help feeling—knowing what the demands upon his time must necessarily be—that he had performed an act of professional heroism in turning out in the morning at such an unearthly hour as 4 o'clock to catch the newspaper train, and be at the meeting to read his Presidential address. It was the busiest men in the world who were always called upon to do the most, and who generally did it the best. He was sure the members wished their President most sincerely long life and plenty of happiness.

The toast was drunk with musical honours.

The PRESIDENT, in responding, said he did not deserve any credit in the matter. He was conscious of many shortcomings, and he thought the credit was due to the Eastern Counties Branches for the splendid arrangements they had made. Unfortunately the Association had been beaten in the Golf Tournament that afternoon, but they had made a good fight for it, and he sincerely hoped that the members of the team would not have their sleep disturbed by dreams of "The drive that failed and the putt that was not up."

The dinner concluded with the singing of "Auld Lang Syne" and "God Save the Queen."

After the dinner an impromptu smoking concert was held at the "Crown and Anchor," over which Mr. Mummery again presided, and a pleasant hour or two was spent in listening to songs and recitations from Mr. Murray, Mr. Robbins, Mr. Rushton Mr. Manning and others, whose efforts were warmly applauded by a large and appreciative audience.

South Wales and Monmouthshire Branch.

A COUNCIL Meeting was held on Thursday, June 8, at 121, Queen Street, Cardiff. It was decided that the Annual General Meeting of the Branch should be held at Cardiff on Thursday, September 28. A Sub-Committee was appointed to deal with details of the general meeting.

J. PERCY OLIVER, *Hon. Sec.*

Southern Counties Branch.

THE Annual Meeting will be held at the Royal Pavilion, Brighton, on Saturday, June 24, 1899.

On Friday evening, June 23, the President-Elect (Mr. John Wood) and the Brighton members invite gentlemen attending the meeting to an informal reception at the Royal Pavilion, at 8.30. (Smoking, music, &c.)

Saturday, June 24. 10 a.m.—Council Meeting.
11 a.m.—General Meeting at the Pavilion (Masonic Rooms).
Hon. Treasurer's Report, 1898.
Council's Report, 1898-99.
Valedictory address by Mr. J. C. Foran, J.P.
Inaugural address by Mr. John Wood.
Election of Officers, &c.

Casual Communications by Mr. Caush on "The Prolongation of Nitrous Oxide Anæsthesia by means of a Mouth-Gag;" "A Case of Difficult Bite," by Mr. T. H. Elliott; Mr. W. Harrison; Mr. F. E. Lambert; "A Case of Exostosis," by Mr. A. Roberson; "A Case of Chronic Ulceration of the Mouth: Treatment and Result," by Mr. J. F. Rymer; "Necrosis of the Tuberosity due to Eruption of Wisdom," and "An Impacted Temporary Molar," by Mr. W. R. Wood.

1 p.m.—The President-Elect kindly invites the members of the British Dental Association to lunch with him at the Pavilion, Brighton (South Drawing Room).

2.30 p.m.—The President-Elect cordially invites the Members to join him in an excursion to Rottingdean and back by the Electric Sea-going Car, starting from the Aquarium by the Electric Railway. (The working of both will be explained by Mr. Magnus Volk, E.E., the inventor and constructor.)

6.15 p.m.—Dinner at the Pavilion (South Drawing Room). Tickets, 7s. 6d each (exclusive of wine).

Nominations for the Council must be sent in to the Hon. Secretary by June 18.

The retiring Councillors (Messrs. F. Bell, F. H. Ellwood, J. F. Rymer, and J. H. Whatford) are ineligible for re-election.

Reply post cards must be sent to the hon. local Secretary, Mr. W. R. Wood, 21, Old Steine, Brighton, by June 19.

FRANK V. RICHARDSON, *Hon. Sec.*

1, *Sillwood Road, Brighton.*

Metropolitan Branch.

THE Summer Demonstration Meeting will be held on Tuesday, June 27, at 4.30 p.m., at the National Dental Hospital, Great Portland Street, W.

Any member willing to demonstrate is requested to communicate without delay with

W. H. DOLAMORE, *Hon. Sec.*

37, *Queen Anne Street, W.*

Central Counties Branch.

THE Annual Meeting will be held in Birmingham.

Friday, June 30.—Annual Business Meeting and Dinner.

Saturday, July 31.—Demonstrations in the morning at the Dental Hospital —detailed list will be sent to members in a few days. Excursion in the afternoon.

The following demonstrations have been promised:—Mr. F. W. Richards, L.D.S.Eng., "Submarine Gold;" Mr. Vickery, L.D.S.I., "Gold Filling with Smooth Pluggers;" Mr. J. T. Craig, L.D.S.Edin., "Porcelain Inlay, using Crown Swager;" Mr. Malcolm Knott, L.D.S.Glas., "Processes in Prosthetic Dentistry;" Mr. Brooks, L.D.S.Eng. and Edin., "Using Fusible Metal in 'Crown' Impressions;" Mr. Cale-Matthews, L.D.S.Eng., "Vulcanite Work, using a Swager."

83, *Edmund Street,*
Birmingham.

A. T. HILDER,
Hon. Sec

Reports of Societies and other Meetings.

General Medical Council.

THE General Medical Council had before it for consideration on Wednesday, May 31, a Report by the Executive Committee to the General Council on the following reference from the General Council, sitting *in camerâ* on November 30, 1898 ("Minutes," vol. xxxv., p. 196):—

"That the Executive Committee be instructed to report upon means to secure the identification of registered medical and dental practitioners, and to prevent fraudulent personation of such practitioners."

REPORT.

The Committee recommend the adoption of the following Standing Order:—

"That no application for the restoration to the Medical or Dentists' Register of the names of persons who have been removed under Section 14 of the Medical Act, 1858, or Section 12 of the Dentists Act, 1878, shall be entertained unless it be accompanied by a statutory declaration made by the applicant setting forth the facts of the case, and stating that he is the person originally registered, and by a certificate from a clergyman, a magistrate, or a registered practitioner as to his identity." (Executive Committee Minutes February 27, 1899, Clause 14.).

On the motion of Dr. MACALISTER, seconded by Mr. BRYANT, the Report was received and entered on the minutes.

Mr. BRYANT moved and Mr. CARTER seconded, "That the recommendations contained in the report of the Executive Committee be adopted."

Mr. HORSLEY: I beg leave to move the following amendment: (*a*) "That a special committee be appointed to report during the present session on the best means to secure the identification of a person applying to be admitted to the medical or dental registers, and to prevent fraudulent registrations either on first being admitted to the Register or on re-registration." My object in moving this amendment is this. When I brought up the subject last session and the matter was referred to the Executive Committee, I think there was some oversight in the terms of the reference, because, as it was drafted, the reference dealt not only with the restoration of a man's name on the Register, but to his initial application. As was shown by the official to the Treasury who enquired into the case, which some of the members may remember, of Ali Khan, an Asiatic who for years practised in this country, anyone can go into the office and obtain a certificate of somebody else's registration, and he could go all over the United Kingdom and exhibit this copy to a practitioner and offer himself as an assistant. This man whom I quote actually did these things. He could then enter a man's house by becoming his assistant, and take an opportunity of robbing him. To make a long story short, in this special instance, on the strength of the certificate obtained at our office this man plundered quite a number of practitioners. It must be our duty to guard against any such method of personation in the future. I venture, also, to draw the attention of this Council to the fact that the method of entry of a practitioner's name on the Register has never been that which is adopted by other Governmental institutions, departments and public bodies. I would only instance the case of the University of London, the methods of which I have enquired into. When an undergraduate applies to be entered for the matriculation examination he has to sign a form, and upon his admission to every subsequent examination he has to write another form. No duplicates of any certificate of such entry are furnished under any circumstances. I have also found out that a very similar system exists in the Incorporated Law Society. Every articled clerk fills up a form which is backed by his principal. Every year that he re-licenses himself he signs again, and at the Society's office they compare that paper year by year with his signature on the roll. In the Government department for the administration of pensions this is the method by which the identity of the person on the roll is secured, and I want very earnestly to impress upon this Council that we should adopt the same precaution, that when a student comes before us having qualified himself, and when he presents himself with his qualification certificate, he should enter his own name in the roll. We should also secure that in the event of a person who has been removed under Section 14 of the Medical Act, 1858, or Section 12 of the Dentists Act, 1878, the Registrar should have this security, that he is dealing with a man who actually has the right to be restored to the Register. I think at the present time our standing order, which deals with the Registrar's duty in this respect, really puts upon the Registrar a responsibility that he ought not to be called upon to bear. I may instance the recent notorious case of the man Nugent. That case also reveals a state of things which is not right. As members of the Council are probably fully aware, a man named Rowland entered into a kind of improper arrangement with the man Nugent—to personate him, in plain English—and he wrote and secured his re-registration in the Branch Council of Ireland.

The PRESIDENT: You will remember that this very case you are referring to comes before us judicially to-morrow, and therefore I would not use that as an illustration.

Mr. HORSLEY: Of course, I bow to your ruling. What I was going to say was nothing more than what has already been published in the Law Courts. As regards the administration of our office I would draw the attention of the Council to the fact that a warning was not transmitted to the branches, with the result that registration was successfully accomplished. I think I have suggested to the Council that the question is a very important one and a large one, but at the same time I believe that it can be satisfactorily dealt with during the present session. I believe if the special Committee be appointed we might frame a series of regulations which would so far do what the profession expects us to do, and that is, prevent any person obtaining fraudulently an entry to the Medical Register.

The PRESIDENT: Do you propose that the young candidate, graduate, or licentiate should present himself at the office and sign a form?

Mr. HORSLEY: That is what I personally propose, but I do not know whether the Committee would accept that.

The PRESIDENT: Let me point out the difficulty. That would be all very well if all candidates who obtained qualifications lived, let us say, as regards England in London, or as regards Scotland in Edinburgh; but many of the men obtain their qualifications elsewhere than in the metropolitan city, that is to say, elsewhere than in the place where the Registrar's office is. Now, it would not be reasonable to ask a man to come all the way from Aberdeen to Edinburgh, or from Manchester to London, in order that he might present himself personally to the Registrar in his office and sign such a form as you have indicated. I mention this to show that there is a practical difficulty which will have to be faced.

Mr. HORSLEY: I have considered that, but I did think that a man's entry into the profession was such an important item in his life that it was not too much to ask him to go the distance. I mean that is my own personal opinion.

The PRESIDENT: I see there is a manifest difference in the point which Mr. Horsley has raised and that what is presented to the Council by the Executive Committee, because the Executive Committee's point is re-registration, whereas Mr. Horsley's point is also the initial registration.

Mr. HORSLEY: I do not think the suggestion of the Executive Committee is sufficiently ample, even for re-registration. At this very session we are going to consider a case of personation in which the applicant did get the paper signed.

Dr. BRUCE: I beg to second the amendment.

Mr. TEALE: I should like to support the amendment. As a member of the Executive Committee I do not think the recommendation is sufficient as a safeguard for re-registration, and I do not think there are sufficient safeguards with regard to the correct registration in the first instance.

Sir JOHN TUKE: I do not consider that the proposal of the Executive Committee is sufficient for the exigencies of the case.

Mr. BRYANT: I have not the least objection to withdraw in favour of the amendment, provided that Mr. Carter agrees to that course.

Mr. CARTER: I have no objection. Our legal advisers were of opinion that the statutory declaration was a sufficient protection.

Dr. MACALISTER: Steps were taken last year in the direction of preventing the issuing of duplicate certificates of original registration to unauthorised persons. Perhaps Mr. Horsley has forgotten that regulation which was passed in November, 1898, by which it was provided that no application for a duplicate certificate of original registration in the Medical and Dentists' Register should be entertained unless it was accompanied by a certificate of identity or by other evidence.

Mr. HORSLEY: I know that, but my point is that any person apparently can get a certificate of identity, anybody can get a clergyman or, as in the instance referred to, a registered medical practitioner, to sign a certificate of identity. It is no safeguard. As to the statutory declaration, we had an exhibition two sessions ago of what the value of a statutory declaration is.

Dr. MACALISTER: There is another point, namely, that the issue of duplicate certificates of original registration should also be included.

Mr. HORSLEY: I think Dr. MacAlister is right; I do not think the resolution is quite sufficiently comprehensive. What I am proposing is that no duplicate certificates should ever be issued. I should like that to be considered by the Council.

The PRESIDENT: Then I think that should be a special motion, or it may be referred to the same Committee. This is a very serious matter indeed.

Mr. HORSLEY: I will add to the motion "That the whole subject of granting certificates of registration be also referred to the same Committee for consideration and report."

The PRESIDENT: The resolution now is, "That a Special Committee be appointed to report during the present Session on the best means to secure the identification of a person applying to be admitted to the Medical or Dental Registers, and to prevent fraudulent registrations either on first being admitted to the Register or on re-registration. That the whole subject of granting certificates of registration be also referred to the same Committee for consideration and report."

The resolution was agreed to.

Mr. HORSLEY: I beg to move, "That the members of the Committee be:—Mr. Horsley, Sir Richard T. Thorne, Dr. Bruce, Sir William Thomson, Mr. Tomes, Sir John Tuke, Sir Philip C. Smyly."

Dr. BRUCE seconded the motion, which was agreed to.

Odontological Society of Great Britain.

THE Annual Meeting, the last meeting of the Session, was held on Monday, June 5, Mr. JOHN FAIRBANK, President, in the Chair.

The following officers and members were elected for the ensuing year: President, Mr. Storer Bennett; Vice-Presidents, Messrs. C. West, W. A. Maggs, and Arthur S. Underwood (*Resident*), and Messrs. W. A. Hunt (Yeovil), J. Henry Whatford (Eastbourne), and G. Brunton (Leeds), (*Non-Resident*); Treasurer, W. H. Woodruff; Librarian, H. Baldwin; Curator, Mr. Storer Bennett; Editor of Transactions, Mr. J. F. Colyer; Hon. Secretaries, Messrs. J. H. Mummery (Foreign), H. Lloyd Williams (Council), C. F. Rilot (Society).

Councillors: Messrs. J. H. Badcock, G. W. Bateman, Leonard Matheson, E. Lloyd-Williams, W. J. England, J. O. Butcher, Arthur Hopewell Smith, J. H. Reinhardt, and H. G. Read (*Resident*); and Messrs. A. A. Matthews (Bradford), Morgan Hughes (Croydon), J. A. Fothergill (Darlington), Walter Harrison (Brighton), Alexander Kirby (Bedford), Martin Henry (Folkestone),

W. H. Breward Neale (Birmingham), D. Corbett, Junr. (Dublin), and Rees Price (Glasgow), (*Non-Resident*).

Messrs. May and Northcroft were appointed auditors.

The LIBRARIAN reported that the number of members using the library during the past year had been fifty-two, and sixteen visitors.

The CURATOR (Mr. Storer Bennett) exhibited some early specimens of attempts at the manufacture of porcelain teeth presented to the Society by Mr. William May. He also showed two models of the mouth of a child aged 7½ years, who had measles at the age of 4. The model showed that the crown of one of the upper bicuspids which had only developed as far as its neck had now protruded through the gum, evidently being exfoliated. It was interesting as showing that at the time of eruption the tooth had evidently been thrown back by nature as being valueless, the pulp being dead and incapable of producing a root. The case was presented by Mr. Parsons. With regard to the museum, he reported that twenty-four specimens had been presented during the year, many of them exceedingly valuable. He appealed for contributions from any members who possessed specimens of erosion, either the rare form where the enamel looked as though it had just been picked by the finger-nail, the saucer-shape depression, or the more common V-shaped depression.

CASUAL COMMUNICATIONS.

Mr. BARTLETT exhibited an interesting denture showing the result of manipulations by the patient. The patient had a large hole right into the antrum the result of syphilis, and in order to make the denture fit he from time to time packed it with gutta-percha, and when it was removed fourteen years afterwards by Mr. Bartlett, it presented a curious spectacle, there being a thickness of nearly a quarter of an inch in the centre line between the palate and the plate.

Mr. HUMBY thought the case was very interesting, apart from its surgical possibilities, from the fact that any kind of pressure in the vicinity of an orifice of the palate enlarged the orifice. One of the most remarkable specimens of the same kind of thing was a case in St. Thomas's Hospital, where a certain perforation of the hard palate was closed by means of a small cork, and the patient finding the cork a little bit loose in the hole wound a piece of wash leather round it. At the time of death she had a brewer's bung filling the hole, with wash leather wound round it.

The PRESIDENT mentioned another case of a lady, whose lower piece was not sufficiently deep, and she arranged in a very clever way cotton wool under it. When he saw her the enormous amount of cotton wool under the lower plate was something amazing. The alveolar ridge was entirely gone.—Mr. READ thought it was a good practice to cover an opening rather early, as it protected the palate and prevented the passage of food into the cavity.

Mr. PREEDY exhibited a new form of chair, the chief characteristics of which were the ease and rapidity with which it could be lowered and raised to adapt itself to any sized patient, the support it gave the operator by resting his arm against the broad, flat surface, and the increased comfort given to the patient.

Mr. H. ALBERT showed a modification of Mason's Gag.

The paper of the evening was on "Micro-organisms in Dental Caries," read by Mr. KENNETH GOADBY, L.D.S.Eng. He said the question of dental caries involved many issues, and more particularly those relative to the etiology of the process. It could not be placed in the same category as those diseases which modern research had shown were due to specific micro-organisms; there were no specific organisms of dental decay. That the destruction of tooth tissue was due to the action of bacteria, had been placed on a scientific basis by the researches of Miller, whose admirable pioneer's work was so well known to all. Dr. Miller's results, admirable as far as they went, were obtained with impure cultivations, thereby introducing one of the greatest sources of error with which bacteriological work was beset. In examining the biological characteristics of organisms which were to be found in caries, and studying their various reactions, Mr. Goadby found that the bacteria present in tooth decay fell into three groups: (*a*) bacteria which produced acid; (*b*) bacteria which liquefied blood serum, and (*c*) bacteria which produced pigmentation. Solution of the lime salts of the tooth was brought about by the acid-forming organisations which, in all cases, were the prime movers in the process. The lime salts being removed, the liquefying organisms were enabled to digest the matrix of the dentine, whilst, *pari passu*, pigmentation of the softened tissue took place. It followed, therefore, that the chief points to be investigated in the organisms of dental caries were three in number, acid production, liquefaction, and pigmentation; and an organism that did not possess either of those qualifications could not be admitted as a cause of the decay. It was thus possible to eliminate innumerable species found in the local cavity, or in decaying dentine, all those that did not bear a distinct relation to the process under consideration, which, although often to be found in conjunction with those causing the disintegration of tooth substance, were only adventitious. The acid-forming organisms naturally deserved the first consideration. But in the first place it was necessary to guard against the supposition advanced by some that all organisms were capable of acid production under given favourable conditions, especially as it was a commonplace bacteriological fact that the usual result of the growth of an organism was alkaline in the culture medium, and that certain organisms only were enabled to reverse the condition and to produce an acid reaction counter-balancing the usual alkaline condition. Some organisms produced a very large amount of alkalinity even in the media containing sugar, a point of much importance in relation to earlier work on dental caries. In June, 1896, Dr. Washbourn and Mr. Goadby read a paper before the Society, in which they laid especial stress upon the presence of Streptococci in all healthy and unhealthy mouths, and called attention to the rapid acid-production of that organism. He was now able entirely to confirm the statement made then, and he thought there was sufficient evidence to place the Streptococcus brevis as the most frequently present of all mouth bacteria. The examination of superficial and deep layers was of the first importance, and he had found in all cases examined that by far the larger quantity of species of organisms were to be found in superficial layers, a fact naturally contingent upon the general bacterial condition of the mouth. Mr. Goadby described the methods adopted for obtaining cultures from the deep layers, and said that so far he had only isolated two organisms, which occurred either together or singly in every case. The one was the Streptococcus brevis, and the second a bacillus quite new to him, and which he had been unable to identify with any other organism, and for which he had suggested the name of Bacillus necrodentalis. It was an anærobic facultative ærobic bacillus and a quick producer of acid. It was very pleomorphic. Up to the present those two organisms were the only ones found in the deep layers which were acid-producers, but they were by no means the only ones to be found upon or near the surface of softened dentine. With regard to the second division of the subject, the liquefying organisms found in dental caries, they were of considerable importance. Organisms isolated from dental caries which were able to digest dentine were liquefiers of blood serum, and, so far as he had tried, those that liquefied ordinary nutrient gelatine did not affect dentine. No digestion of uncalcified dentine had so far been affected, the tissue always requiring softening by acids before the digestive enzymes could attack it. He thought there was no ground for the supposition recently advanced by Dr. Hunter, that the process in dental caries might be carried on by non-acid-producing bacteria, all experiments proving that decalcification precedes liquefaction or digestion. With regard to the third and final section of the subject, pigmentation of dentine was of common occurrence and of many shades, but the discoloration frequently met with was the ordinary brownish or almost black colour assumed in most cases of caries. The gangrænæ pulpæ of Orkövy produced a brown discoloration of the medium, even when grown in the hot incubator. During Mr. Goadby's researches upon the bacteria of the mouth, he had met with a considerable number of organisms which coloured agar at 35° C. varying shades of brown, and it was interesting to note that they were in many cases liquefiers of blood serum.

In concluding his paper, Mr. Goadby said he was of opinion that the arguments and experiments adduced proved that the classification of the organisms found in dental caries fell under the three headings he suggested, and that the grouping brought the clinical and bacteriological problems into phase. He considered that progress in the subject could only be made by the adoption of that system.

Replying to Dr. Washbourn, Mr. F. J. Bennett, Mr. Schelling and Mr. Storer Bennett, Mr. GOADBY said he appreciated Miller's pioneer work and had made it the basis of his own work. He pointed out, particularly in regard to Miller's work, that he gave two or three cultural peculiarities of an organism and nothing else, whereas it was necessary to be scrupulously careful in describing organisms and to give an extended and careful study on the characteristics of the different media. The alkaline production was very interesting and might have some relation to the way in which dental caries at times stopped. He was rather inclined to Dr. Washbourn's idea that the pigment might have some recondite influence on the growth of the organism. The point he wished to make was not whether liquefaction could be obtained in some very small corners of the dentine, but the broad fact that dentine was liquefied by certain organisms obtained directly from a tooth in which there was softened dentine, and he thought the chain of evidence was about as close as one could hope for in bacteriological work. The question of phosphates had a great deal to do with bacteriological work, but he did not think the amount of phosphate liberated by the action of organisms on enamel and dentine would be so great as to modify their growth. It might be, but so far the experiments he had made, using various phosphate salts, had made very little difference, and the Streptococcus brevis grew in anything, even in ordinary water.

PRESIDENT'S ADDRESS.

The PRESIDENT then delivered his valedictory address, thanking the officers and members of the Society for the assistance they had given him during his year of office. He reviewed the work of the Society during the year, and expressed a hope that the Society would find a home in the new building of the Dental Hospital which was rapidly rising. Referring to the question of a higher degree, he thought it was a matter in which the Odontological Society were not likely to play any official part. Looking at it from one point of view, it seemed most desirable, though the objections to it might prove stronger than any argument that could be adduced in its favour. The special nature of dental work, both in its science and its practice, necessitated a special diploma, and it seemed reasonable that those young men who, by their natural abilities and their hard work attained a high standard of excellence in their operations, and a profound knowledge of the scientific part of their profession, should have their exceptional powers confirmed by a recognised degree in addition to the ordinary diploma of L.D.S. and the general surgical and medical diplomas which they might possess.

On the motion of Mr. S. J. HUTCHINSON, seconded by Mr. WOODHOUSE, a hearty vote of thanks was accorded to the President and officers of the Society for their work, and, the President and the Hon. Secretary having briefly replied, the Session terminated.

Annotations.

The Ipswich meeting was a success from start to finish. Many of the graver topics discussed have been already alluded to, but the delightful welcome afforded to the Association by the Eastern Counties Branch demands a hearty and sincere acknowledgment in our editorial column. The Journal came in for some criticism, and its ways and manners were explained and defended in such a way that the prolonged applause that followed the speech of the Chairman of the Publishing Committee gave that body a full assurance of the hearty support and co-operation of the Association it strives so hard to represent. The Committee feel that while they endeavour to do their duty they have the mass of their members behind them, and since part of that duty is to keep in touch with the members generally, they will, at an early date, publish an article, dealing as extensively as possible with those departments of journalistic management that may be most likely to interest their readers.

Mr. Smith Turner's paper on "Training in Mechanical Dentistry" was the first to claim the attention of the meeting, and on this extremely controversial subject his great knowledge and long experience, not only in private practice but for many years as lecturer on mechanical dentistry at the London Dental Hospital, were brought to bear in a manner which called forth the liveliest interest from all present. Much discussion followed the reading of this paper and that of Mr. Booth Pearsall on "Technical Training in American Dental Schools," and opinions were somewhat warmly expressed as to the relative merits of the American and English methods of instruction. Other interesting papers were also contributed, particulars of which will appear as soon as possible.

Just before going to press we have received a letter from Mr. Booth Pearsall in reference to the subject which he and Mr. Murray have lately investigated, which, in justice to the writer, we feel we cannot do better than quote *verbatim*. He says:—

"I have received, per Mr. S. Mitchell, of Bradford Road, Dewsbury, some brittle platinum wire which resembles in fracture the crystalline condition I have written about.

"Mr. Mitchell made a small furnace with platinum wire wrapped with cotton, and passed a current through the platinum wire without baking the clay investment. The high temperature of the platinum caused a combination with the carbon of the cotton. When the clay investment of the furnace is baked, first the cotton is burnt away and the electric current can be passed through the platinum wire without injury. The platinum wire is wrapped with cotton when it is imbedded in the clay in order to allow sufficient space for its expansion and contraction in heating and cooling the furnace. Mr. Mitchell has been at the trouble of constructing a furnace in order to destroy it and thus produce the brittle platinum.

"Can you in London learn in what way the platinum is refined and melted? If it is melted with the electric arc it would seem to me quite possible that carbon particles could be thrown off and thus spoil the platinum. The defect may not be enough to spoil the platinum but leave it workable. When it is baked in the porcelain the high temperature would seem to bring out the defect, and then when the teeth are heated by the dentist the *mischief* is done. The fact that a continuous gum tooth pin, *fractured* in this way with myself before it was put to any dental use, would point to the defect being in the pins before the dentist gets hold of the teeth."

If any of our readers can help with useful facts or specimens we hope they will contribute them.

Miscellanea.

Benevolent Fund.

The following contributions were received during May :—

Donations.

Southern Counties Branch, B.D.A., collected April 22, per F. V. Richardson, Local Representative	£3	12	6
Miss Jordon, 17, Talbot Road, Bayswater	10	10	0
Midland Branch, B.D.A., collected at Branch Annual Meeting (per J. Renshaw)	4	16	0
W. Tothill, 7, Montpelier Row, Blackheath	1	1	0

Collected at Anunal Meeting at Ipswich.

Donations.

Charles West, 41, Finsbury Square, E.C.	5	5	0
W. H. Coffin, 94, Cornwall Gardens, S.W.	0	10	0
Mrs. W. H. Hope, Oxford Street, Wellingborough	0	10	6
William Rushton, 32, Harley Street, W.	0	10	0
J. H. Reinhardt, 384, Brixton Road, S.W.	1	1	0
William Glaisby, 4, St. Leonards, York	1	1	0
C. Browne-Mason, 5, The Crescent, Scarborough	0	10	0
Lawrence Read, Greenham Villa, Newbury	1	1	0
A. E. Donagan, 7, Newhall Street, Birmingham	1	1	0
Mrs. Brunton, Hilary Mount, Leeds	1	1	0
J. H. Mummery, 10, Cavendish Place, W.	10	10	0
J. Ackery, 11, Queen Anne Street, W.	5	5	0
Odd amounts in cash	0	6	6
Anonymous	0	10	6

New Annual Subscriptions.

Mrs. Paterson, 7a, Manchester Square, W.	1	1	0
C. W. Large, 60, Holland Park Avenue, W.	1	1	0
Mrs. Robbins, Gwenda House, Brondesbury Park	1	1	0
Mrs. Glaisby, 4, St. Leonards, York	1	1	0
Mrs. Murray, 10, Hume Street, Dublin	1	1	0

Added to the above were *promises* which will be acknowledged when received:

New annual subscriptions	£8	8	0
Donations	22	11	0

Royal College of Surgeons in Ireland.

Mr. W. F. Crosse, having passed the examination, has been admitted a licentiate in dental surgery. The following passed the primary part of the examination for L.D.S.:—Messrs. A. L. Harrison, D. L. Rogers, J. R. Small, G. M. Sterling, and E. N. Tate.

QUESTIONS GIVEN AT FINAL DENTAL EXAMINATION, MAY, 1899.

Dental Surgery and Pathology.

(1) For what purposes is cocaine used in dentistry? Discuss its therapeutic value. Is it advisable to inject this drug into the tissues? Give reasons for your answer.

(2) State some of the causes of discoloration of the front incisors. Describe any fairly successful method of bleaching a front tooth.

(3) What is the composition of salivary calculus? In what situations in the mouth is it most frequently found? Has it any diagnostic significance when found on the surface of the molars?

(4) State the different pathological conditions which may arise in the pulp consequent on inflammation. How would you distinguish between them?

(5) Describe the various changes that may occur in the dentinal tubules during the progress of caries.

DENTAL MECHANICS.

(1) Describe the various forms of mechanical appliances used in the treatment of superior protrusion; also state the usual causes of this deformity.

(2) How will the ductility and elasticity of gold be affected by alloying it with (*a*) copper, (*b*) silver, (*c*) platinum?

(3) What is vulcanite? Name the various forms used in dentistry; state their respective uses, and the mode of vulcanising.

(4) Babbitt metal; its constituents and uses in dental laboratory.

(5) State accurately one method of mounting a gold cap upon a root.

Appointments.

E. B. DOWSETT, L.R.C.P., M.R.C.S., L.D.S., to be Demonstrator of Practical Dentistry at Guy's Hospital.

C. F. HINCHCLIFF, L.D.S., to be Demonstrator of Practical Dentistry at Guy's Hospital.

D. W. PARSONS, L.D.S.Edin., to be Hon. Dental Surgeon to the Ormstick Dispensary Cottage Hospital and Home for Nurses, Liverpool.

NOTE.—ANONYMOUS Letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 62, Wimpole Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

Subscriptions to the Benevolent Fund to the Treasurer, A. J. Woodhouse, Esq., 1, Hanover Square, W.

All contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 26, Wimpole Street, W.

Journal of the British Dental Association

No. 7. JULY 15, 1899. VOL. XX.

Original Communications.

The Treatment of Pulps and Pulpless Teeth.[1]

BY T. A. COYSH, L.D.S.ENG.

MY paper of to-night was originally intended to be in immediate continuation of the subject discussed in three separate papers on October 27, 1898. The lapse of time may perhaps have caused some to forget the exact trend of those papers, and therefore I venture to remind you, that they all dealt with the subject of pulp treatment from the conservative point of view; the first paper treating of the results of mummification, the second of formagen treatment, and the third of partial extirpation.

In my own practice, I have consistently failed to secure a certainly successful result from any other treatment of the exposed or diseased pulp than its devitalisation and total extirpation, followed by thorough root filling; and my paper is intended to give expression to the opinions of those who favour the radical treatment, and to describe my own methods of performing it, and of minimising its difficulties.

To begin at the very beginning, one might perhaps enquire why there should be this exceeding reluctance to destroy a pulp; and why it is such a very good thing to keep it alive.

I believe that the statement so constantly made, and apparently accepted without further question, that our first thought in tooth treatment should be for the life of the pulp, will not withstand argument. It might have been a true statement once, when we had not our present knowledge of antiseptics and antiseptic methods of treatment, or the choice we now have of suitable instruments and materials for preparing and filling roots; for it cannot be questioned, but that the future of a tooth, the pulp of which was dead or diseased, must then have been to some extent a matter of doubt. At the present day, however, with that knowledge and those appliances, little or no doubt need be felt as to the success of the operation of extirpation and root filling.

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[1] Read before the Metropolitan Branch of the British Dental Association, April 18, 1899.

If it is true that the life of the pulp is of such great importance, there ought to be some strong reasons advanced in explanation. But none of those commonly urged seem to be of sufficient importance to justify dentists in forsaking a tried and proved method of practice, based on surgical knowledge, as the radical treatment is, in favour of pulp capping, which, by whatever method performed, remains now (as, judging by any work on the subject that I have ever read, it always has been) uncertain and apt to fail.

It is said that devitalisation is to be avoided, because by the withdrawal of the vascular and nerve supply of the pulp the ultimate life of the tooth may be shortened. This objection is not a very weighty one, at any rate when any but very young teeth are in question; for there is no evidence to show that a fully formed pulpless tooth, properly treated and filled, will have its period of usefulness curtailed simply because it has no pulp; while on the other hand there is plenty of evidence to show how long such teeth will last. Untreated ones of many years' standing are constantly being encountered in practice, and, bearing upon what may be expected to happen with properly treated ones, we had some interesting facts from Dr. Walker at the previous meeting.

As to the future of our filling I may point out also, that a much more perfect one is likely to be made in a pulpless tooth, since by absence of pain there is no obstacle in the way of complete and suitable preparation of the cavity.

Again, it is said that there is a greater risk of non-success in the radical treatment, and that the operation is of greater difficulty, and requires more time than capping does.

In respect of risk, I think few will question but that extirpation and root filling properly performed is uniformly successful; and careful and thorough work in this direction will undoubtedly result in immunity from failure. But, even allowing some slight risk, does the percentage of failures of carefully performed root fillings even approach that of failures of capped pulps?

With regard to the other objections, it seems to me that if there is a choice between a method of treatment which is certain in result, and one which is not, the question of difficulty and time ought not to be considered. That treatment which will give ultimately the best result is the treatment to be adopted, whatever its temporary drawbacks.

Difficulty alone, is or should be, a stimulus to accomplishment (it certainly seems to be in gold filling and crown work); but I am sure that the difficulties (including the one of pain) of extirpation and root filling are over estimated, and will be found less serious than they are imagined. I know that in my own practice, very rarely indeed is undue trouble experienced in this work.

The fact that extirpation and root filling are operations on definite surgical lines and in accordance with our knowledge of surgical processes, should, I think, induce us to undertake them in preference to an operation which is, in our present state of knowledge, but little removed from empiricism. Simple healing of a pulp by first intention can only happen, as Mr. Hopewell Smith has made clear, under conditions which are well-nigh impossible of attainment in the mouth; and yet all the described operations of capping apparently presuppose healing in this manner.

Such a surface as is capped, would elsewhere have to heal by granulation, but the pulp, although it has no lymphatics and is therefore less able to get rid of inflammatory exudations, is expected to do so by first intention. No provision is made for the removal of discharges or of any slough that may form, and there is little wonder under such circumstances that the pulp so frequently refuses to make any effort to heal, and dies.

Capping may be taken as intended to achieve either:—

(1) Cicatrisation and true healing of the wounded pulp, (2) Protection by formation of secondary dentine, or (3) Mummification of the pulp tissue; and undoubtedly each of these conditions may be attainable sometimes: but I venture to suggest that the possibility of attainment of any of them is of less importance than the question of "are they desirable conditions to secure?"

Although healing may, and sometimes does, take place, yet, owing to the absence of lymphatics in the pulp, in the large majority of cases, the exudations cannot be properly carried away, and therefore resolution is not so complete as takes place elsewhere; and either a lowered condition of vitality ensues, rendering the pulp liable to sudden attacks of inflammation from slight causes, or else, and this was my general experience, a chronic sub-acute form of congestion persists, and—a very important point—both conditions are extremely prone to induce facial neuralgia, although in many cases there may be very little if any local pain.

It does not seem to be generally recognised, or if it is, the knowledge is not constantly acted upon, that facial neuralgia arises only occasionally from another cause than a diseased tooth pulp; and more usually from one or a portion of one, in a condition of congestion or irritability, than from one in a state of acute inflammation; and I would suggest that the possibility of a capped pulp getting into such a congested condition, and thereby becoming the origin of neuralgic pains, is a contingency to be considered—and avoided.

In this connection, I should also like to make a protest against the practice sometimes recommended, when preparing a cavity, of not removing the lowest layers of decalcified dentine for fear of exposing a subjacent pulp. If a pulp is only covered by softened tissue, it is already, for all practical purposes, exposed, and should be treated accordingly.

In any case, a certain diagnosis of its condition cannot be made if it be doubtful whether its covering is soft and decalcified tissue, or hard and healthy dentine. If it be made an invariable rule to clear away all carious tissue, it will be found that very frequently, even in seeming shallow cavities, the softened dentine reaches right down to the pulp. The undesirability at all of sealing down such masses of germ laden material, much less near to, or in actual contact with, a living pulp, need not be emphasised.

With regard to the probability of deposition of secondary dentine after capping, it is a question to my mind, if the masses we sometimes find are not rather degeneration products than attempts at repair. The formation of a protective layer can never be assured, and, on the other hand, the proneness of pulps with nodules of secondary dentine in them to become the origin of neuralgic troubles is well known.

Finally, the risk of death of the pulp subsequent to capping is considerable, and the fact that it constantly takes place under cappings, with and without pain, even in apparently favourable cases, points to there being always present an element of chance as to the final result, and this is inconsistent with scientific work.

With respect to formagen I think that if the preparation had been subjected to no more than theoretical analysis before being used, it would not have had the vogue it has enjoyed, and a very considerable amount of extra work and annoyance would have been saved to many of us.

Can permanent success be expected to result from the use of a preparation which has been proved to be inconstant in composition, and which, if used according to the instructions, sets at defiance the elementary principles of surgery? Is it likely that any acutely inflamed or suppurating surface can be suddenly and perfectly healed, even by the application of so powerful an antiseptic and hardener as formic aldehyde? We know that formic aldehyde itself will not perform any such miracle, and indeed I believe that its existence at all in formagen has been questioned. Certainly if it is present it must be so in very small proportions, and as a part of the liquid. Careful search in standard works on chemistry has failed to discover any method of generating formic aldehyde by the mere mixing together of a solid and liquid at normal temperature, as, it is suggested in the formagen advertisement, happens when the mixture of liquid and powder is made. All the described methods of producing formic aldehyde require the assistance of considerable heat, the one for which the lowest temperature is required being the dry distillation of calcium formate; and for this 100° C. are required. Formic aldehyde is not known in any more concentrated form than 30 to 40 per cent. aqueous solution; and probably the liquid of formagen contains some proportion of this. Formic aldehyde being itself a gas, could scarcely be concealed in a powder. How small a quantity of it, then, is likely to be present in the small amount of mix which a capping consists of, and is this minute quantity likely to perform the wonders described?

The very diversity of the results reported from the use of formagen is sufficient to take away its character as a specific. We hear of life and painlessness, and life and acute inflammation; and of death with mummification and inertness, and death with alveolar abscess, all resulting after its application. Do these diverse results point to a specific curative action, or are they not practically a repetition of what has been reported before of pulp capping on the old lines? Mummification seems to be an attempt to make the dead pulp subserve the purpose of a root filling; but the pulp is very largely water, and let its solid portion become as leathery and aseptic as it may, it cannot, when dead and withered, really fill the pulp chamber and canals, and so the net result is but an imperfect root filling. Respecting the risk of discoloration of a pulpless tooth, it may be worth while pointing out that in cases of spontaneous death of the pulp or of mummification, any discoloration is likely to be far greater than if devitalisation and root filling is performed.

In view, therefore, of the risk a capped pulp is subject to, of undergoing fibroid calcareous degeneration, with the sequelæ of hypersensitiveness to changes of temperature and consequent local discomfort, or of induced facial neuralgia—a result I believe to be far from uncommon—and the further risk of acute inflammatory trouble and death, with liability to subsequent abscess, I think there are enough obvious objections to the adoption of pulp capping as a regular mode of practice.

I have so far dealt only with exposed or diseased pulps, but I hold that it is sometimes quite justifiable to destroy a healthy unexposed one, in order to make it possible to properly prepare a cavity. I may instance those extensive but shallow cavities we sometimes meet with, which involve the whole or nearly the whole of the mesial or distal surfaces of the incisors or bicuspids. It is not possible to prepare these for gold without inflicting more pain than can usually be borne, but pulp destruction enables us to do it, and to fill with little pain or difficulty. I must not be understood as advocating this in any but cases of absolute necessity, but it seems to me that a well filled and painless tooth is a more desirable possession than a sensitive living one, with a constantly failing osteo filling in it.

The difficulties of root filling are not so very great when they are dealt with on a definite plan. To begin with, only very rarely is it difficult to destroy a pulp in its entirety, and the actual preparation of arsenic used does not, I believe, matter very much. Personally I generally use Baldock's paste, because of the ease with which a portion of it can be carried on a small point directly to the exposure.

Having secured the death of the pulp, the next step is to make complete and free access to the roots; this, and the funnelling out of the orifices of the canals, are the operations which must be properly done if the rest of the work is to be fairly easy.

The plan of cutting a new hole in the axis of the roots, in order to gain a direct approach to them, might be much more frequently adopted than it is. Undue sacrifice of sound tissue can often be avoided in this way, for a comparatively small coronal cavity, when suitably undercut, will generally give access to all the canals; in an upper molar most frequently so. In the lower molars I find that I can frequently fill the posterior root from an original distal cavity, and the anterior roots from a small independent hole cut in the anterior portion of the tooth. The kind of hole which I find gives the readiest access and sacrifices the least amount of enamel, is one involving part of the antero-external cusp, and a small part of the mesial wall of the tooth. It is rather difficult to describe, but I pass round examples. Good cross-cut burs for the enamel followed by large round or oval ones (preferably S. S. White's "Revelation"), which cut *dry* dentine in a surprising way, will make this opening up of the pulp chamber as little tedious as may be. Keeping the cavity absolutely dry will much expedite this stage of the operation.

For funnelling out the orifices of the canals, I have never used so effective an instrument as a modified canal drill; one of good size, having a slightly elongated cutting head, and a cutting, not a blunt, point. The thin shaft allows the point to reach the canal even through a narrow opening, and its flexibility permits of its doing its work in positions where a rigid bur would not cut in a true direction.

I very rarely indeed drill out canals. By the use of suitably fine instruments in treating them, it becomes superfluous to do so, and the objections to it do not need to be recounted.

Fine instruments are an absolute necessity for this work of canal treatment. Many of the difficulties and failures arise from attempting to do it with clumsy and unsuitable ones.

In my hands the Donaldson cleansers meet nearly all requirements; I use only the finest size; they are tough and flexible, and very few roots, if well funnelled out, cannot be penetrated by them; and even in these if the cleanser is slightly screwed in and withdrawn direct, a channel of respectable size can be quickly cleaned out. As pulp extractors they are unrivalled, they do not curl up at the first obstacle, and they entangle the pulp very securely when rotated. For carrying dressings and absorbents for wiping out canals I always use fine watchmakers' broaches; they are three-sided, and a fine size, which goes easily into any canal into which a fine Donaldson has penetrated, is stocked by Ash as "Liverpool Students' pattern."

Some little method should be observed in drawing the temper of these for use. Only the part nearest the shank should be thoroughly soft, and the extreme point should be left spring temper; there will be then no difficulty in causing the broach to pass into the canal, as there is with the ready (and too much) softened patterns sold. The shank should be made red hot with a small blow-pipe flame, and the heat allowed to extend up the shaft till the right temperature at the point is reached; and for use they are conveniently mounted with shellac in old "Donaldson" handles.

I should also like to suggest the use of bibulous paper for wiping out and drying canals. A very thin piece of it takes up little room, and can be carried on one's broach as far as the broach itself will go; and yet has great absorptive power.

I feel sure that any one who once learns to use this material (and after wool it is a little strange to manipulate) is not likely to go back to anything else as an absorbent.

Finally, as a root filling I have found nothing so easy to work and so universally suitable as oxychloride of zinc mixed to a thin cream, with or without an addition of iodoform or similar antiseptic.

It has the advantage over phosphate that it is itself antiseptic; and a slight dampness of the root rather assists its passage to the apex than not, for it mixes with water readily, and so is drawn up to some extent by capillary action. For the same reason it can be readily pumped, by a thin broach, down or up a fine canal, which would be almost impossible to fill with gutta-percha.

In conclusion, I think there is room for serious consideration as to the wisdom and good policy of the general capping of pulps which has become so much the fashion of late. The fact that an exposed pulp or a pulpless tooth, sometimes—often if you will—can be made to behave itself without radical treatment, is no reason why such treatment should not be undertaken, if success can be rendered more certain thereby; and, apart from the morals of the question, there is no ultimate saving of time, and there is a great loss of prestige, if even a small percentage of our fillings come back with pulp or abscess trouble.

The first consideration that is likely to guide our patients in forming an opinion of our work, is the freedom from suffering which has been secured to them by it, and I find that a little extra time or even discomfort during the work, is never grudged by them if they feel sure that the final result will be satisfactory in this respect. On the other hand, if any pain continues and they are more or less constantly reminded of the presence of a living and sensitive pulp, they are quite unable to appreciate the benefits to themselves of the conservation of that pulp—and of the dentist's time.

DISCUSSION.

The **PRESIDENT**: We have listened to a most interesting and exhaustive paper, and I am sure anyone who is in the habit of writing papers must realise the labour entailed in its production. There is plenty of scope for discussion; there are still those among us who believe in formalin and capping appliances. Mr. Coysh has advanced so many ideas and put them in such a clear and concise way that I am sure all present will give him a hearty vote of thanks.

Mr. **RUSHTON**: I wish Mr. Coysh were here to receive the congratulations of those who are glad that he has advocated devitalisation rather than pulp-preservative treatment in advanced cases. I think one reason why tender-hearted dentists do not destroy pulps is that they know the patients will bear pain which comes upon themselves much more patiently than they would bear pain inflicted by the dentist. Very often a patient goes away and bears a great amount of pain, and then comes back when the pulp is in a suppurating condition, when its exposure by the dentist can be accomplished very much more painlessly than before, or else calcification or mummification takes place in due course of time. I think in either of these three cases the pulp had much better have been devitalised at first, and the whole operation carried through in an orthodox manner.

There is one particular sort of pulp which I think is very painful to both operator and patient to devitalise, that is a pulp which has been very much calcified. We have all met cases in which most of the pulp seems to have been turned into a sort of low-class dentine with remains of pulp running through it. You come across little bits here and there. You only know it by the pain caused to the patient. There is no actual exposure to be seen and no flow of blood. To some of these cases we have to apply an arsenious dressing a great number of times before devitalisation takes place. I know of one case in which quite a week was spent by the patient in very great pain before devitalisation was at all complete. In those cases I think one might be tempted to try anything rather than run the risk of such a week of agony as that. Still, I think in the ordinary way devitalisation is the better plan. Formaldehyde, if it is of the usual 40 per cent. strength, causes very great pain to a live pulp. Its existence in formagen I am very much inclined to doubt. With regard to Japanese paper, I think anyone who has used it will never go back to cotton wool again. As to drilling a separate hole, it seems to me that the hole which Mr. Coysh has drilled in the tooth is very small. It may be large enough for him, but I should have thought it would have been much better if he had drilled from the back with a good sized bur, and got at the whole of the pulp cavity and the two roots in the ordinary way. I do not think he would have made any weaker job of it in the end.

Mr. Gill: If I may add my small meed of congratulation to Mr. Coysh for having the courage to face a Metropolitan audience with such a paper as this, I should like to do so. I think a great many men in town are apt to be tempted to push the conservation of the pulp to extremes on account of the all important factor of time, not only to himself, but to his patient also. We find that in a town patients are anxious to give us as short a time as possible in the chair, not only on account of the pain, but because they have something else to do. They are always in a hurry, and I am sure that many a case where capping is tried must ultimately end in failure for that reason. Perhaps the fact of gentlemen having the courage to boldly advocate more radical treatment may do something to stem the tide of that temptation. Personally, I do not think there is any necessity for any appreciable number of cases suffering pain during devitalisation. The vast majority of cases I am tolerably certain can be devitalised with a little patience practically painlessly.

Again, I support Mr. Coysh on another point, that you run great risk, in capping the pulps, of getting discoloration which is extremely difficult to remove. If the pulp dies, that discoloration may not be observed by the patient, because it comes on so slowly and gradually. The patient may be away, and would perhaps rather not go to a stranger, and at the next visit you find an utterly disorganised pulp and this terrible discoloration. You are practically reduced to the necessity of crowning, where a little more courageous treatment at the commencement, and a little more patience, would have saved that necessity. I have yet to learn that the artificial mineral tooth is as strong as one's own even if you only have a very moderate amount of material still left. Therefore, I think Mr. Coysh has been of service to us to-night, although I do not follow him in thinking that formalin is quite so useless. I began with a certain amount of timidity, and I must say reluctance at first, to use it in a certain number of cases, but I have found it answer in cases where I have had a reasonable chance of having a pulp to deal with which is not already seriously infected with bacteria.

Mr. Goadby: I think that the whole question of the treatment of pulps is on an extremely unsatisfactory basis, whether you cap the pulp, mummify it, or destroy it. In every way you have many risks and some of them extremely grave risks, both theoretically and practically. There are a good many points in connection with the bacteriology of these devitalised and mummified teeth to which I should like to draw your attention. As a matter of fact, in dealing with devitalised pulps of any sort, in making cultivations from the roots, root dressings and root fillings of any sort, almost 80 per cent. of those fillings prove to contain organisms, in fact the percentage may be even higher than that quoted. In a paper published by Arkövy at Buda-Pesth, the author states that he had been making experiments with regard to the bacteria of alveolar abscesses and decayed dentine, and he has found organisms present in almost every case. If you look at his statistics you will find nearly 80 per cent. gave organisms; not necessarily, however, in pure culture. If they were of pure culture you might consider that there was some other factor at play, there being the chance of one dropping in during root treatment; but when you find four or five varieties, and among them some commonly present in the mouth, it is fairly clear that they have escaped the operator and have been introduced during the operation. The structure of dentine itself is of such a nature that the ordinary antiseptics used in root treatment do not penetrate into the ultimate dentinal tubules in those remote parts in which the bacteria are existing, so that it is quite easy to more or less sterilise the part of the dentine next to the pulp chamber and the root canals, and yet leave the internal parts of the dentine still inhabited by organisms. The use of formaldehyde in that treatment—I do not mean live pulps—is one which I think ought to occupy the attention of dentists more than it does. It is different from many other antiseptics, and, owing to its gaseous nature (a large amount of gas is given off from the solution), penetrates into the dentinal canals far more than other antiseptics do, and there is considerably more chance of its sterilising the dentine. But there is one further point; formaldehyde forms a compound with gelatine which I believe is considerably used surgically, and if one uses it for the treatment of root canals we may certainly expect to get some sort of formation with the formaldehyde and the matrix of the tooth. Of course, if formaldehyde is put into a tooth and left in as a root dressing, it is almost certain to find its way out; it should only be used at the time of operation, other less volatile antiseptics being left in the root. Another point in connection with dealing with root canals is this: I am afraid it is very often the case that a drill which has been used on a septic tooth is used for drilling out a root treated with arsenic. I wonder if they are ever really boiled first. Rarely, perhaps. If that is so, it is a very easy way of introducing organisms from other parts. You will remember, in that paper of Mr. Hopewell Smith's, how the organisms were shown well in advance of the caries where there is a small superficial cavity, yet the organisms were shown distinctly right down almost to the pulp. To be consistent, I suppose we ought to destroy all pulps in teeth which have got even the least amount of caries in them, because the chances are that the bacteria have got to the pulp and therefore we must destroy it. On the other hand, the preservation of these pulps and the use of capping materials, I think, eliminates one point which so often comes into play, and that is the use of instruments which may be infected and the introduction of the micro-organisms into the root of the canal after it has been cleaned. In fact, you have removed out the one devil and there is room for the seven others. With regard to the molar which was passed round, it struck me that it was somewhat difficult to get the whole of the cavity thoroughly and properly aseptic, and to introduce the filling by working from the two sides in that way. It may be that my dexterity is at fault, but I should not like to attempt that root filling. I particularly wish to call the attention of members to the fact of the way in which organisms producing alveolar abscesses are found in the dentine itself, that a large number, in fact almost all root dressings and mummified pulps, can be demonstrated to retain organisms in them, only ready for some favourable opportunity to start an alveolar abscess.

Mr. TORPEY: I should like to ask if any gentleman has any experience of "plastic dentine." I tried it in the case of one lady patient, and she had very great comfort with the tooth for about a month, but was then obliged to have it extracted.

The PRESIDENT: Did you cap the pulp?

Mr. TORPEY: Yes, according to the instructions. It was not a diseased pulp, as far as I could judge, but merely an exposed pulp.

Mr. DUMAYNE: I have two teeth in my head now which were stopped by my friend, Mr. Poole, with plastic dentine, and they are perfectly comfortable. They have been done about five months.

The PRESIDENT: Were the pulps devitalised or capped?

Mr. DUMAYNE: They were capped. They were very nearly exposed, but not quite.

The PRESIDENT: Were they fully excavated?

Mr. DUMAYNE: Yes.

The PRESIDENT: Was the plastic dentine capped with a metal cap or was the stopping placed immediately upon it?

Mr. DUMAYNE: The stopping was placed immediately upon it.

Mr. HUMBY: There is one rather important point raised by Mr. Goadby, and that is the presence of organisms in canals which have been properly cleaned and filled. I think the proper answer to that is that our antiseptics and root dressings do keep the teeth from future troubles, and therefore, if the organisms were objectionable in the first place, the objection was probably put an end to as it is by the present system of serum cultivation. If an organism is bathed in its own juice, as Sir William Harcourt puts it, it ceases to live, and the cultivations which are made at the present time to produce the various serums for dealing with diseases of various kinds are, I believe, based upon that fact. If you enclose in any cavity a number of organisms with a certain amount of antiseptic material, the chances are the organisms will commit suicide, and no longer be capable of doing any harm. The same thing, I think, accounts for the impunity with which we stop teeth which are partly decayed, which we know contain organisms in the tubuli of the dentine. I think that must account for some of the cases being successful. The extreme difficulty of removing the ultimate fragment of a pulp seems to me a point Mr. Coysh has not touched upon, and that is of the most vital importance, because upon that point turns the success or failure of the operation. Then, again, if inflammation sets in, following the imperfect removal or imperfect manipulation of the root, then, I think, it puts an end to itself by the generation of the ptomaines from the body of the organisms, and there is an end to the trouble in that way. We have a difficulty sometimes in removing a little piece of colloid material at the very apex of the root when trying to empty the pulp cavities. If any gentleman could suggest some kind of harmless solvent for that piece of material, I think he would confer a great favour upon dentists. I have tried several times to do it, but I have never succeeded in pleasing myself. I have tried to, but never succeeded, in dissolving the remaining fragment with pepsine scales, and I am going to try papane, which is said to dissolve almost anything.

There is another point upon which I must fall foul of Mr. Coysh, and that is where he says that a small entry in the crown of a molar is sufficient to enable us to accomplish successful cleansing of the roots. That is quite against my experience, which has extended over a good many years now. If a person takes a tooth, a first upper molar, and takes three fine Donaldson bristles, he need not very greatly explore the roots, but only just moderately. It will be seen from the direction the bristles take, that it is impossible to obtain proper command unless a good portion of the crown is cut away. The ordinary root drills are very often spoken of; I see Mr. Coysh says he does not use root drills, but he does not specify anything against using a particular root drill. I think some root drills which were introduced by Dr. St. George Elliot, made without any spiral at all, so that they could not screw themselves into the hole, are the safest. If a root drill has any spiral or screw in it it will be sure to break the shank of the instrument, leaving the point in the hole. I think, therefore, one should never use a screw-drill, and I think that should have been pointed out. Mr. Coysh speaks of using the very finest cleansers, but that requires modification. In removing the pulp of teeth you have not to deal with small pulp cavities alone. Small cleansers are necessary for small teeth, I admit, but if a person is not very careful a fine root cleanser will pass through the apex. Another thing is that the cleanser will come out again and decline to engage the pulp sufficiently to tear it away. There is another point in connection with the cleansers which is more important than any of them, and that is that they are cut upon the spiral. It will be found they are cut with a series of burs in the shape of a spiral, in a right handed direction. If it is a small root and you have a small cleanser, if the latter is rotated the point is almost sure to be left in the root.

A member used the word "fad" in connection with pulp capping. I believe that gentlemen of considerable experience have spoken here of pulp capping. I do not think that a person who caps a pulp is a faddist; I think their opinions are entitled to be treated with a certain amount of respect, and I do quarrel with these strong terms being employed, because I think they are rather apt to deter gentlemen who would otherwise be ready to prepare papers for our Association. With regard to a tooth which has been decayed and which has not yet got the pulp exposed, the secondary dentine is sometimes a reason why we fail to secure permanent results in the treatment of that particular portion which is converted. If examined under the microscope it seems to be full of vessels, and it is coarse in texture, and there is not the slightest doubt it is crowded with bacteria. Therefore I think that should be sterilised with something, and some sedative and antiseptic application made over the region before any phosphate is put upon it. If you moisten the cavity, you will distinguish the secondary area from the primary dentine, defined quite as distinctly as though marked out with a pen and ink. There is another difficulty in which we are placed in these cases. A great many cases were brought before us on the last occasion from hospital practice. The value of that is not much: cases in private practice are of very much greater value than those in hospital practice. If I had hundreds of cases in hospital practice I should not feel much confidence in them, because a patient comes to have a tooth seen to, and then goes away and has it extracted elsewhere, and you do not know anything about it. With regard to whether in capping or extirpation any consideration of time should be allowed to stand in the way, that opens up a very big question, namely, whether dentists are justified in stopping teeth at so much a tooth. I think that practice has been more degrading to our profession than any other. I have known a gentleman stop eight or ten teeth in one hour, at so much a tooth. I leave you to judge whether that can be done properly. There is as much difference between teeth as there is between an artisan's cottage and Buckingham Palace; and yet teeth are stopped at a uniform rate, and the consequence is the dentist does not do the work in the way it should be done. With regard to capping, I think I have had sufficient experience to justify me in saying that there are many cases where it is desirable, and I do not think any gentleman is justified in condemning it; I think it is very good in certain cases. It is said that the pulp survives actual separation—that you may take a tooth out and put it back again, and it will survive; and yet you tell the dentist he cannot perform the simple operation of capping a pulp.

I do not say that the tooth does survive in the former case, because I have no means of knowing, but I have heard gentlemen say so who I believe know what they are talking about, and yet we are told that our skill is insufficient to cap a pulp. That seems to me to be rather inconsistent.

The PRESIDENT: Notwithstanding the perennial nature of this discussion upon devitalisation, there are still two opinions, and we have seen to-night that there is still work being done upon both lines. There is just one practical point which I think we can all take away with us, whether we are advocates of devitalisation or capping, and that is the ease with which septic infection may be introduced by the instruments, as so ably described by Mr. Goadby. I think that should lead us on to more practical care in the disinfection of our instruments.

The SECRETARY (in reply): I can only thank the members on behalf of Mr. Coysh for the interesting discussion on his paper. I have no doubt that it will give him great pleasure to read it.

A Modification of Koch's Balsam Embedding Process, as Adapted by Weil.[1]

BY S. F. ROSE, L.R.C.P., M.R.C.S., L.D.S.ENG.

MR. PRESIDENT AND GENTLEMEN,—The process which I am about to speak of in this short paper is one peculiarly well adapted to show the hard and soft tissues in their proper relationship to one another, but as we find it in our text-books it is exceedingly long and tedious, and Mr. W. H. Must and myself have endeavoured to cut it down considerably, making it much simpler, though still retaining all the essential points in the original method; and, as we have obtained good results, it might be interesting to some members to know our simplified process.

The first essential in obtaining a section of the tooth pulp *in situ* is to open up the pulp chamber, so that the fixing agent can enter readily.

This is easily effected when transverse sections are desired, by cutting up the tooth with a sharp fret saw; but for longitudinal sections, of which unfortunately only one can be obtained from the same tooth, grind down both sides flat on an ordinary coarse tool-grindstone until the pulp is fairly well exposed on either aspect, and then drop the section straight into absolute alcohol to fix. When a number of sections are being put through together, and it is desirable to keep the identity of each, I have found it an excellent plan to mark a number or letter on the ground surface with a lead pencil; this will show up quite plainly at the end of the process through the clear balsam.

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[1] Read at the meeting of the Microscopical Section, Annual General Meeting, held at Ipswich, May, 1899.

It is best to leave the sections in the alcohol about a week, not so much to harden them as to render them capable of taking the carmine stain more readily, which this appears to effect.

The sections are then removed to stain, Grenacher's alcoholic borax-carmine being especially suitable. A common mistake is to give too short a time in the stain. I have found they can be left in three weeks with advantage, the dentinal fibrils, interglobular spaces, and even cement corpuscles then showing up beautifully, and with the kind I have mentioned we need never fear overstaining.

The sections are now thoroughly dehydrated in two changes of absolute alcohol for about twenty-four hours, then placed in clove oil for about twelve hours, then an hour or so in xylol, and lastly chloroform, in which they should be soaked for a day or two.

Desiccated canada balsam is now added to the chloroform a little at a time, thus gradually drawing it into the specimen until the consistency of thick treacle is reached ; they are now ready for the water bath.

No elaborate apparatus is necessary for this latter ; we use a treacle tin to hold the water, with an ordinary teacup fixed inside it by means of a loop of copper wire for the specimens, and a small Bunsen flame underneath to keep it going, adjusted to maintain the water at a temperature just below the boiling point. More water must, of course, be added from time to time. In spite of one's care the water will boil sometimes, but I have never noticed any ill result from it, some of my best sections having come from a batch in which the water boiled more than once. The chloroform at first comes off rapidly, and after a few hours in the cup the balsam will already have assumed considerable stiffness.

The sections should now be picked out with forceps, carrying only as much balsam as adheres to them, and placed in another shallower tin with a flat bottom, and small enough to go inside our water bath. They should be laid out quite flat on this, never superimposed on one another.

The copper wire loop is now removed from the water bath, the specimens in the tin floated in it, and the heating continued. In this way the hardening is tremendously accelerated, as there is so very much less balsam to be dried, and in about twenty-four hours or so it will have obtained the requisite brittleness. We can now identify our sections by means of the pencil marks, and then set to work to grind them down.

A flat surfaced and rather coarse corundum or carborundum wheel, with plenty of water, should be first used until the section is fairly thin, finishing up between ground glass plates with water only, as any abrasive material, such as pumice, would be worked into the balsam, and spoil the look of the soft tissue, not to speak of the trouble it gives us in trying to recognise unusual calcific deposits. The glass surfaces should not be too smooth, that produced by grinding ordinary silver sand in between them answering excellently, doing the work quickly and well, with less risk of catching and dragging the specimen than if a smoother surface be used. Of course, great care must be taken in grinding, and the thinner one gets them the better the soft tissues look; but after a little practice one gets very expert at it, and the successes more than compensate for the failures.

When thin enough, the sections must be washed clean of all *débris*, passed quickly through absolute alcohol and oil of cloves, and then mounted in xylol balsam.

In comparing the above process with the original it will be seen, firstly, that the perchloride of mercury is left out, the reason for abandoning it being that it produces masses of unsightly black deposit which quite ruin the look of an otherwise beautiful specimen; the method given of using iodine with alcohol does not appear to obviate this.

Secondly, the gradually increasing strengths of alcohol are dispensed with, absolute alcohol being used from the first. Muller's fluid can be substituted for it, however, with very good results.

Thirdly, the acidulated alcohol to fix the stain is left out; if the sections have been well stained it is quite superfluous.

If a suitable tooth has been chosen, namely, one with a living pulp, and the process conscientiously carried out, one can pretty safely rely on getting a beautiful section of the hard and soft tissues *in situ* such as no decalcification process can ever give us.

One objection urged against the process is, that one is limited in the matter of stains; this is true to a certain extent, but I have succeeded in using some of the special nerve stains in conjunction with the balsam embedding process, notably iron and tannin; in this case the carmine is, of course, left out; the section is embedded in balsam and ground down, the balsam washed out by repeated changes of chloroform, after which the special nerve stain can be used.

Osmic acid can also be used to stain in bulk before passing the section on to balsam.

I have brought down with me a number of sections and a few lantern slides illustrating the above process, and it is my hope that, however unorthodox the method may seem, you will be able to think that the end has justified the means. For the lantern slides I am indebted to the kindness of my friend and co-worker, Mr. W. H. Must.

DISCUSSION.

Mr. **CHOQUET**, said that when the sections had been embedded in paraffin, and dissolved in chloroform, he had observed that if any part of the chloroform remained, the entire block of paraffin continued quite soft. He thought that xylol would be better than chloroform. He first used chloroform, but after some time he tried xylol, and was very pleased with its effect.

Mr. HOPEWELL SMITH said it seemed to him, as Weil's process had been attended with such a very considerable amount of difficulty, taking up time and trouble and constant labour, that anything which would lighten those labours ought to be welcomed by those who were interested in that particular branch of science. He thought the British Dental Association would reap the benefit of the papers that had been read on the subject. It was curious that M. Choquet's modification should have been heard on the same day as Mr. Rose's. Personally, speaking with regard to Weil's process, he was more in favour of fixing and hardening the soft parts and then decalcifying them. There was an opportunity, under the microscopes, of comparing the two methods of treatment, as Professor Paul, of Liverpool, had sent some of his recent preparations, which appeared by the side of the specimens of Weil's process on the table. It would be apparent at once that a greater number of variations in the stainings could be used in the former than in the latter method, although, of course, as Mr. Rose had just said, he could use chloride of gold and other stains in connection with the Weil process now. That was a great advancement. The carmine specimens looked very pretty, but he thought other stains should be used. For instance, the staining of the micro-organisms *in situ* in pulp tissues would be a very difficult, if not impossible, thing to do by Weil's method of impregnation with balsam. Thanks to Mr. Rose's kindness in letting him know the details of the process, he had used the modification with great success, and was very pleased with it. It had cleared away a lot of difficulties that had existed previously. He had come across, in several instances, little bundles of crystals in the tissues, and he would like to ask Mr. Rose what they were due to and how they could be got rid of?

The CHAIRMAN (Mr. J. J. Andrew) said it was all very well for Mr. Hopewell Smith to say it was easier to make the sections in soft tissues, but in studying the hard and soft tissues they must be studied in the decalcified and calcified sections, and a man had to use all the methods he could get to elucidate all the points. He thought the papers would be of great help in preparing sections with the laborious process which Weil had brought out some years ago.

Mr. HEADRIDGE asked if it were not objectionable to use the absolute alcohol at once. His idea was that it had such a coagulative action on the protoplasm that it caused a shrinkage of the cells, and therefore an imperfection in the result obtained.

Mr. SIDNEY SPOKES said perchloride of mercury was useful in certain cases, especially in those preparations where enamel was developed.

Mr. BAKER asked Mr. Rose what his fixing agent was; whether he used formalin, and if he washed a specimen after using formalin?

Mr. ROSE, in reply, said his experience was that xylol would take a much longer time than chloroform. Chloroform could be used very rapidly, and the results appeared to be good. He quite agreed with Mr. Hopewell Smith that by the decalcification process more stains could be used. One could certainly get some better results with Weil's process, which could not be got with decalcification, such, for instance, as the resolution of the structure of the secondary dentine and pulp stones. He had noticed the crystals Mr. Hopewell Smith had spoken of, and they had troubled him a great deal. He remembered taking the first section round to Mr. Mummery, and asking him about them. Mr.

Mummery did not quite know what they were due to, and suggested that perhaps it was the borax in the carmine. Whether that would produce a crystal of that shape or not he could not decide. His own impression was that it had nothing to do with any pathological condition. With regard to the use of absolute alcohol, one had to judge by results, and if the results were good they ought to be taken on their merits. Theoretically, one would get a lot of shrinkage, but practically he did not think it was noticeable. With regard to perchloride forming patterns in the enamel, it did appear to do so in hard tissues, but whether they had any special significance or not he was not prepared to say.

Prolongation of Nitrous Oxide Anæsthesia by Coxon's Tube.[1]

By ALFRED COCKER, L.D.S.I.

Mr. Cocker stated that the prolongation of nitrous oxide anæsthesia by means of a Coxon's tube was, in his opinion, a more satisfactory method than that of using the nose-piece, in cases where the object of the administration was to enable one to extract stumps or badly decayed teeth. He thought it was the experience of everyone that, when removing stumps under the influence of gas, the tongue often so far covered the floor of the mouth as to make it difficult to avoid pinching either one of the glands, or the tongue, or tearing the gum on the lingual side; but with the use of a tube these accidents were much more readily avoided, the administrator being able to so manipulate the tongue with the tube, that instead of its being a hindrance to the operator, it was most helpful. The tube further acts as a prop, and is so satisfactory in this respect that a mouth can generally be cleared of stumps, even should the ordinary prop fall. Thus, one is enabled to get through an operation in less time, and generally without the necessity of a Mason's gag.

The tube used by Mr. Cocker was similar to the one originally designed by Mr. Coxon, being simply a bent one without stop-cock, made to fit the bag union as does the two-way stop-cock of the face-piece. It is much more convenient to hold, and in use there is ample time to exchange the face-piece for the tube.

The nose-clip is a most essential accessory to this method, as many patients breathe freely through the nose when under the influence of gas, so much so that without it an undue quantity of gas has generally to be used. This waste is entirely obviated when the clip is applied.

Another important appliance which has been devised for this method is one for heating the gas. It consists of a stand holding two bottles, the nozzles of which face each other, with a simple union placed between them, the bottles being clamped against it by means of a screw clamp which passes round their necks. One bottle may be useless for prolonging anæsthesia, especially if it be a full one, as the exit readily becomes choked with frost, but this arrangement enables one to either alternate the supply, or use both bottles, thus lessening the possibility of freezing. On the side of the stand a vessel is suspended for holding hot water, the gas passing through it by means of a copper coil so as to become heated before its inhalation. Dr. McCardie, in the JOURNAL OF THE BRITISH DENTAL ASSOCIATION of last August stated that "he did not think the heating of the gas was necessary." Mr. Cocker, however, had witnessed two cases where recovery after this method was very slow—a circumstance which, no doubt, was attributable to the intensely cold gas. As the administration is prolonged the gas reaches a temperature something below that of freezing point, and if it is not heated before it is inhaled, there must be a considerable risk of congestion or bronchitis supervening. From the experience he had had, the recovery after warmed gas was noticeably better than after cold.

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[1] Demonstration at Annual Meeting, Midland Counties Branch, April, 1899.

He was in the habit of administering from 100-gallon bottles, and did not find he was troubled with freezing as he had been that morning with 50-gallon steel-bottles. He thought the cause was to be found in the narrowness of the opening in the valves, which prevented the gas escaping as freely as it was required. Out of three cases two very clearly demonstrated the success of the method. In the third case both bottles were so badly frozen that a sufficient stream of gas could not be obtained.

It is important to notice that the bag be kept fully distended so as to ensure a strong pressure of gas. The best position for the bag he had found was under the left arm, the tube being held in the left hand. The tube should be placed well back to the pharynx, making perfectly sure that the opening was not being pressed into the soft parts, and the flow of gas arrested. This was the rock which would cause most failures, and which must be strictly watched. It should further be remembered that the greatest risk lies in allowing the mouth to become flooded with blood. Take your time and mop it out, and let there be no confused hurry. With these precautions one need not have the least fear in using the tube, and there will be no complaining on the part of the patient of having felt the last tooth.

Abstracts and Translations.

The Trophic Function of the Dental Pulp.[1]

By T. E. CONSTANT, M.R.C.S., L.R.C.P., L.D.S.Eng. (Scarborough).

THE absorption of the alveolar ridges, or "shrinkage of the gums" as it is popularly termed, which takes place, even in young subjects, after the removal or loss of the teeth, has hitherto been attributed to the atrophy that almost invariably attends the loss of functional activity—it being assumed that the main function of the alveolar ridge is the support of the teeth. More than once has it been compared to the muscular atrophy that takes place in a limb the movements of which have been lost or impaired—indeed, that is a not unfamiliar dogma of the text-books.

This explanation always appeared to me to be extremely unsatisfactory, and the doubts of my hospital days seemed to be justified when I was engaged some years since in some investigations directed towards the elucidation of the etiology of the dental deformity known as "anterior protrusion." I then noted that, in young people, when a back tooth had lost its antagonists, the characteristic elongation which takes place under those circumstances varied in cases in which the pulps of the unopposed teeth were dead from those in which they were living. In the former instance, although the elongation of the teeth took place, it was unaccompanied by any downgrowth (or, in the case of a lower tooth, upgrowth) of the alveolar ridge ; whereas, in the latter case, there *was* a corresponding deepening of the alveolar ridge. In other words, in the case of dead teeth there was simply extrusion from the alveolus, but in the case of living there was growth of the alveolar ridge. To me it seems obvious that the growth of the alveolar process is dependent upon the integrity of the dental pulp, and that the wasting of it after removal of the tooth is due rather to the removal of the dental pulp and the local damage that is the result of extraction of the teeth than to the "loss of functional activity," to which it has hitherto been attributed.

These considerations appear to justify the inference that the pulp of a tooth influences in a marked manner the nutrition of that part of the alveolar process in which it is embedded—or, in other words, that the pulps of the teeth as a whole exercise a trophic influence with regard to the alveolar process. It is the rule for "dead" teeth to be somewhat looser in their sockets than the living teeth in the mouth of the same individual, and this looseness cannot, in the majority of cases, be ascribed to wasting of the sockets, for it becomes apparent before sufficient time has elapsed for any marked atrophy of the alveolar process to have occurred. This looseness, moreover, is increased by causes too trivial to affect in the slightest degree teeth in which the pulps are alive and healthy. Now, there can be no question, I think, but that this is due to an altered condition of the vascular surroundings of the roots of dead teeth. Regarded in the light of this phenomenon, it seems quite evident that extirpation of the pulp of a tooth causes a marked and permanent alteration in the vascular condition of its peridental membrane—in other words, a disturbance of vaso-motor equilibrium in the direction of a paralysis of the vaso-constrictor mechanism—a similar change (allowance being made for the difference in the anatomical relations of the parts in question) to that which takes place in the vascular condition of a rabbit's ear after section of the sympathetic. The result, therefore, of extirpation of the dental pulp is to produce a tendency to a passive congestion of the peridental membrane, due to the loss of resiliency of its blood-vessels—a condition eminently favourable to blood stasis, and quite sufficient to account for the trophic change that invariably takes place in the surrounding alveolar process.

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[1] Read at the Annual General Meeting held at Ipswich, May, 1899. This paper having been already published, according to usage we confine ourselves to a limited abstract.

The foregoing remarks apply to both the permanent and temporary dentitions; but the pulps of the temporary teeth exercise another kind of trophic influence, which also seems to have escaped the notice of dental writers—I refer to their influence upon the process of resorption of the roots of the temporary teeth. In the case of temporary teeth, in which the pulps are destroyed at the time when resorption of the roots should commence, resorption, strictly so-called, does not occur at all. In such cases, a certain amount of absorption of the root, as a rule, takes place, just as it often does in the case of dead permanent teeth, the macroscopic appearance of the roots in both instances being strikingly similar. This absorption is a pathological process and differs markedly from the physiological process of resorption. It is a much slower process, and that is one reason why we so frequently find the apices of the roots of dead temporary teeth protruding from the labial or buccal surfaces of the alveolar ridges, causing that ulceration of the mucous membrane of the cheeks or lips with which we are so familiar in the case of children whose milk teeth have been neglected.

The explanation of this common phenomenon is simple. The death of the pulp of the temporary tooth has left its root incapable of resorption and its socket prone to degeneration. Absorption is too slow a process to make room for the crown of the permanent successor which soon impinges upon the dead root, deflects it, and thrusts its apex through the degenerated alveolar process and the superjacent soft tissues. In those cases in which death of the pulp of the temporary tooth has taken place some time after the process of resorption has commenced, and the root is, in consequence, shortened, the pressure of the advancing permanent tooth simply tilts the root until it takes a nearly horizontal position, the crown, if any remain, being correspondingly deflected. Other phenomena which admit of a similar explanation are familiar to us all, and need not be enumerated.

From the time when the dental pulp is "nothing more than a part of the mesoblastic myxomatous tissue of the jaw, which has become more rich in vessels and cells than the other neighbouring part" (for this euphonious definition I am indebted to Mr. Tomes),[1] up to the time when commencing senile degeneration presages the termination of its physiological activity, it is one of the busiest exponents of local government observable in the whole domain of human physiology. While it is hard at work constructing the tooth, it regulates the blood pressure that causes that organ to travel to its appointed place in the mouth, at the same time building up the bony walls that enable that pressure to act at a mechanical advantage. Then, in the case of the temporary teeth, it superintends the demolition of the very structure it has been at such pains to create; and finally, in the case of the permanent teeth, it controls the nutrition of those parts upon the integrity of which the tooth is dependent for the proper exercise of its function. Thus we are able to understand the otherwise inexplicable phenomenon which Mr. Tomes aptly describes in the following words:—

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[1] "Dental Anatomy," p. 129.

"It is impossible to insist too strongly upon the fact that the sockets grow up with, and are moulded around the teeth as the latter elongate. Teeth do not come down and take possession of sockets more or less ready-made and pre-existent, but the socket is subservient to the position of the tooth; wherever the tooth may chance to get to, there its socket will be built up round it. Upon the proper appreciation of this fact depends our whole understanding of the mechanism of teething; the position of the teeth determines that of the sockets, and the form of pre-existent alveolar bone has little or nothing to do with the disposition of the teeth."

I should like to record my opinion that a very large number of those cases classed under the comprehensive title of "Pyorrhœa Alveolaris," which are usually attributed to the presence of some local irritation, such as the deposit of "tartar," are in reality due to a degeneration of the tooth pulps, and the consequent derangement of their nutritional function.

If only our microscopists had been able to demonstrate direct nerve connection between the peridental membrane and the so-called "odontoblasts," we should naturally have credited those interesting protoplasmic particles with a vasomotor function; for, situated as they are at the very periphery of the pulp and in close contact with the dentine, it cannot but be supposed that they must be peculiarly susceptible to even minute variations in the blood pressure.

Before we venture so far as this, however, we must first have positive evidence that the odontoblast cells form a part of the sympathetic nervous system.

Coronal and Hyper-Contour Amalgam Fillings on the Cunningham Ferrule Matrix System.[1]

The subject of a demonstration given at the Annual General Meeting at Ipswich, May, 1899.

BY J. CLIFFORD WING, L.D.S.ENG.

I think there is no matrix known to the dental profession at once so simple and effective as that employed in the ferrule matrix system introduced many years ago by Dr. Cunningham. It is very quickly and easily applied, and by its means even the largest compound cavity becomes converted into a simple one. Its characteristic advantage is that it can, and should be, left on the tooth till the amalgam has set, and, if properly adjusted, without any discomfort to the patient, and that it therefore allows the operator to finish and polish the filling at a second sitting without fear of its being displaced in the interim.

The matrices are of a considerable number of different widths and sizes, and are made in the most simple and easy manner. A sheet of German silver of No. 2 thickness is taken and cut into strips of different lengths and widths Then each of these strips should be bent into a ferrule, with an over-lapping joint, and soldered with soft solder over a spirit lamp.

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[1] This paper having already been published, according to usage we confine ourselves to a limited abstract.

A tapered steel mandrel is a great help to hold the furrules while filling up the soldered joint, and while polishing with a buff.

When the cavity has been prepared and is ready to be filled, a matrix, the size of which appears likely to fit, is chosen from the box and tried on the tooth. The matrix is then cut by a pair of short nail or curved scissors, so as to fit the cervical margin accurately, and so that there is no excess at the articulating margin. If necessary, the metal can be bent to fit the cervical margin of the cavity by suitable pliers, and can be contoured, if need be, by crown contouring pliers. When fitted and adjusted in place, the matrix should be pressed tightly against the coronal portion of the side of the adjoining tooth, with a burnisher, so as to get as full a contour for the amalgam as possible.

Close adaptation of the matrix at the interdental cervical margin of the cavity can be assured by passing a rolled-up piece of cotton wool, amadou, or metal wedge between the cervical margin of the matrix and that of the adjoining tooth, after the matrix is in position. Wood can be used for this purpose, but is more painful. As a rule, however, this end can be attained by a bulge on the ferrule, or the natural spring of the metal.

In filling, the amalgam should be built up very full, and the patient made to bite into it, so as to get the exact articulation with the opposing tooth or teeth. Excess is trimmed away, and the matrix is left on until another day, when it is carefully removed and the filling polished.

By means of posts fixed into the nerve canals, or by the use of dentine screws, many a tooth is able to be filled with a large, correctly articulating contour amalgam stopping, which, by any other method, would have had to be crowned.

The matrix is also useful for many other purposes, such as ordinary contour fillings, whether amalgam or gold ; retaining devitalising or other dressings in the absence of retaining walls ; but particularly so for taking the size and shape of roots for working models in crown and bridge work, in conjunction with the use of fusible metal.

The Simplification of Weil's Method.

BY J. CHOQUET, D.E.D.P., F.M.P.,

CHIEF OF THE LABORATORY AT THE DENTAL SCHOOL OF PARIS.[1]

ALL who wish to make sections of teeth while preserving, in place, the relations that exist between the hard and the soft tissues without decalcification, and have employed the method of Koch-Weil, have been struck by the results obtained, from the point of view of the fineness and the beauty of the preparations. I have sought to simplify the operative manipulation, and have obtained some excellent results. Among the preparations I have made after this simplified method, here are three teeth which were prepared in five days, and I might even have succeeded in finishing them in four days. Immediately after extraction I ground them down with the corrundum wheel, until there was an imperceptible layer of dentine covering the whole extent of the pulp; then I had them immediately placed in a solution of formol of the strength of 15 per cent. of the ordinary solution, in which they remained for six hours. At the end of this time, the colour-staining was done with a reactive stain containing a light proportion of alcohol. The colouring matter is the alcoholic borax-carmine of Grenacher. The preparations remain in it long enough to be thoroughly penetrated by it, and are brought without preliminary washing into alcohol containing four to six drops of pure hydrochloric acid, per 100 cent cubes. The sections are left in this liquid until they are thoroughly penetrated by it. Then they are placed in:

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[1] Read at the Annual Meeting of the British Dental Association, held at Ipswich, 1899, Microscopical Section. This paper having been already published, according to usage we confine ourselves to a limited abstract.

Alcohol at 70 per cent.	½ hour.
Alcohol at 90 per cent.	½ hour.
Absolute alcohol	½ hour.
Absolute alcohol, 10 c.c. Hylol, 1 c.c.	1 hour.
Absolute alcohol, 10 c.c. Hylol, 3 c.c.	1 hour.
Absolute alcohol, 10 c.c. Hylol, 5 c.c.	1 hour.
Absolute alcohol, 10 c.c. Hylol, 10 c.c.	1 hour.
Pure hylol	1 hour.[1]

Then the Canada balsam is used as indicated by Weil. The receptacle is placed over the vapour of boiling water, and when a light crust is seen to be formed on the surface by the cooling of the Canada balsam, the teeth are taken out and are exposed to the air *with the face of the section upwards*, and very lightly covered with balsam on the surface of the glass that is brought over the water vapour. The complete hardening requires from twelve to fifteen hours—not longer—for a longitudinal section of a canine or an incisor.

In place of alcohol of successive degrees of strength, I use, then, formol for the fixation and the hardening, either alone or associated with alcohol, in the following proportions:

Distilled water	20 gr.
Alcohol at 95	10 gr.
Formol	3 gr.
Acetic acid crist.	0·5 gr.

This is the formula of Lawdowsky, and it appears to give better results, especially from the point of view of staining, than the use of the formol alone.

If I employ xylol as a solvent of Canada balsam, in place of chloroform, it is for two reasons:

1st, because chloroform does not penetrate the soft tissues at all easily, whereas xylol penetrates them much more rapidly; 2nd, because it produces on the dissolved the same phenomena as for the preparations in paraffin for which this body is employed. As long as there remains a particle of chloroform in the mass it remains soft and cannot be cut cleanly through with a razor, a source of inconvenience which one avoids where xylol is employed;

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[1] The layer of dentine covering the pulp is then removed, great precautions being taken not to destroy the soft tissues.

for this latter, being very volatile, allows one to leave the cellular elements for a much shorter time in contact with the heat.

I shall be truly happy if my English colleagues will try this method, with the modifications that I have just had the honour of submitting to them.

Chloroform at Dental Hospitals.

THROUGH the courtesy of Dr. John Macmillan, of Edinburgh, we have received notes of a death which occurred at the Dental Hospital, Edinburgh, on May 5. As some misstatements have appeared in the lay press we give Dr. Macmillan's own account of the occurrence. The patient, a young woman, aged 18 years, was taken to the Dental Hospital by her mother to have some teeth extracted. She was examined by Dr. Macmillan, who found her organs healthy, and chloroform was then administered by, we presume, the open method. We understand that the recumbent posture is adopted for patients who take chloroform at this hospital, and that the duty of administering it is deputed to a specially appointed medical man. Except the facts that the girl died and that a careful examination was made of the body after death, which showed that there was no departure from the normal in any of the viscera, we are without particulars. We understand, however, that in Dr. Macmillan's opinion death was due to paralysis of the respiratory centre, and that no circulatory trouble occurred. This, of course, means that an overdose was taken, or, to put it perhaps more accurately, either too strong a vapour was inhaled, or too much chloroform was given from start to finish. It is not our purpose, however, to comment upon either of such explanations; we shall confine our attention to the question:—Is it a wise plan for any dental institution to adopt chloroform as its routine anæsthetic? Speaking generally, nitrous oxide has for many years been adopted as the most suitable anæsthetic for use during the extraction of teeth. Nor is it too much to say that the dental profession has for years set its face against the employment of chloroform in dental practice. Snow and, in his earlier days, Clover were not averse to giving chloroform in dental cases, but the large number of deaths which occurred under it led to the substitution of nitrous oxide when that anæsthetic was proved to be at once adequate and safe. Even the most enthusiastic supporter of the former anæsthetic cannot attempt to place it on a parity with nitrous oxide in the matter of safety. Nor is the cause of this hard to find. The anæsthesia of "laughing gas" must attain its acme to be of any value, and its acme always lies within a zone of safety. With chloroform the most experienced man may make mistakes. The drug shows the symptoms of its progressive action from an initial stimulation to a final paralysis of the nerve centres presiding over the tripod of life. In the anxiety which the chloroformist feels that the patient shall remain "well under" when the chloroform is no longer being inhaled he is apt to prolong the narcosis to the fourth degree of Snow, in which the medulla oblongata is already rendered paretic. At this stage, any interference with respiration, as by the alteration of the position of the head of the patient, or causing a change in the anatomical relation of the parts, or the pushing back of the tongue such as commonly occurs when lower teeth are extracted, may prove sufficient to determine a fatal issue. The drug cannot be eliminated, and the breathing, rendered feeble by the lowering of nerve energy, fails altogether. Dental operations, as they are extremely painful and the severance of the tissue implicates directly nerves anatomically associated with the most important members of the cranial series, are peculiarly obnoxious to incomplete anæsthesia. The knowledge of this and of the fact that many deaths have occurred in persons incompletely protected by chloroform affords yet another reason which leads the chloroformist to induce a deeper degree of narcosis than would be adopted in other operations. It is, then, surprising that, with these facts patent, chloroform should be employed at dental hospitals. We hope that this sad experience may lead to a change in the direction of adopting nitrous oxide as a routine anæsthetic, and the discontinuance of the employment of chloroform except in cases where a very prolonged anæsthesia is required.—*Lancet.*

Poisoning during Chloroform Administration from Decomposition in the Presence of a Flame.

SEVERAL cases of this serious accident have during the last few years been placed on record. In the *Boston Medical and Surgical Journal* of May 11, Dr. K. Wilson has added another case to the list. Chloroform was administered to a patient in labour in a small room (12 feet by 13 feet by 8½ feet), where three gas flames were burning. In a short time those present felt an irritating sensation in the throat and chest, resulting in incessant coughing and gasping for breath, which became so violent that the operation—the application of the forceps—could not be proceeded with. The cause of the symptoms was not recognised. An escape of illuminating gas was sought for and all the windows and doors were opened. The operation was concluded under ether, not because chloroform was suspected to be the cause of the trouble, but because prolonged anæsthesia was necessary. Not long after Dr. Wilson noticed the following statement[1] by Emil Aronson: "It is best not to use chloroform by gas-light; the free chlorine has not only killed the patient, but in a recent case also the physician, and made two nurses sick for some time." Dr. Wilson then investigated the literature of the subject. Professor Zweifel[2] performed a number of laparotomies under chloroform in a room and in the presence of three gas flames. In seven out of the nine cases catarrhal pneumonia developed, and one ended fatally. The symptoms were intense coughing, dyspnœa, and pain in the wounds from the exertion. Dr. Mey, of Herne, Westphalia, reported[3] an operation for gunshot wound of the abdomen lasting four hours, during which the surgeons and nurses were overcome by the decomposition products of the anæsthetic. One nurse died on the second day after the operation. Another case occurred during herniotomy in which three ounces of chloroform were used, and half an ounce was spilled accidentally on the floor in a small, badly ventilated room heated by an oil stove and lighted by an oil lamp and a candle.[4] The experiments of Stobwasser are important. He exposed rabbits and guinea-pigs to air laden with the decomposition products of chloroform, and found *post-mortem* evidence of broncho-pneumonia and œdema of the lungs. The trachea was deeply congested, and both trachea and bronchial tubes were filled with frothy mucus. The literature on this subject is now rather extensive, and several very important researches have been undertaken to elucidate the causation of the suffocative symptoms referred to by Dr. Wilson. In 1889[1] Dr. D. R. Paterson, of Cardiff, narrated a case of exactly similar nature to those given above, and at his instance Mr. Cundall, at the University College, Cardiff, examined the fumes given off by chloroform when evaporated in the presence of a flame and found them to consist of carbonyl chloride, a body discovered by Mr. Humphrey Davy, and by him called phosgene gas, as well as of hydrochloric acid fumes. It should be remembered that von Langenbeck pointed out the danger even before Dr. Paterson's paper appeared and attributed it to irrespirable carbonyl chloride, (chlorkohlenoxyd). The most recent research, and by far the most exact, is one undertaken by Dr. Sebastiano Famulari in the laboratories of the University of Messina. His conclusions are that the fumes which have proved so extremely dangerous and even fatal are those of carbonyl chloride, and in this he agrees with Professor Ramsay, who has also investigated the phenomena. The obvious practical lesson to be learnt from these cases and the researches is the inadvisability of using the anæsthetic except from a closed inhaler, such as Junker's, whenever chloroform is required for operations during which a lamp or illuminating gas is employed. Even with the small quantity of chloroform evaporated from the modern forms of Junker's apparatus irritating fumes are given off in small rooms. The inconvenience is notably worse in wet or foggy weather. It is certainly important that this drawback to the use of chloroform should be widely known. Chloroform is a sheet-anchor in midwifery, and unless care be taken and the room in which parturition is to take place be well ventilated and recourse to candles be had, there is always a danger of poisoning by phosgene gas, both in the case of the patient and of the medical man.—*Lancet.*

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[1] *New York Medical Record*, February 18, 1899, p. 237.

[2] *Berliner Klinische Wochenschrift*, 1899, No. 15, p. 312.

[3] The *Lancet*, February 26, 1898, p. 611.

[4] The *Lancet*, March 12, 1889, p. 749.

Multiple Neuritis through Necrosis of the Lower Jaw caused by an Ill-fitting Denture; Easy Removal of Sequestrum. Rapid Recovery.

BY MONTAGUE D. MAKUNA, M.R.C.S.ENG., L.R.C.P.LOND.

THE patient, a female, aged 25 years, had suffered from facial neuralgia on and off for years past. In 1894 several decayed teeth were removed, and she wore a denture which was ill-fitting. Subsequently a few more teeth decayed which were extracted, and she wore another denture equally bad. She could not be persuaded to leave off wearing the denture, and thus made herself a martyr to pain, resulting in insomnia, mental irritability, anorexia, and loss of body-weight from 11 st. in 1894 to 6½ st. in October, 1898. She consulted me on October 10 last for motor paralysis, hyperæsthesia, wasting of the left upper limb, and swelling of the right side of the lower jaw from the external oblique ridge to the symphysis. She had four fairly good lower incisors, but the two canines were much decayed by the clasps of the denture, and there were four decayed molars in the upper jaw. She was compelled to give up the denture. From October 12 to November 5 she received fifteen sittings of combined electric current. She was put on liquid diet with digestives, and hæmoglobulin, cod-liver oil and hypophosphite emulsion, and phosphide of zinc were administered in succession. She also received anodynes and hypnotics. The tenderness of the upper limb gradually disappeared, and by the middle of November she regained motion, and the muscular structure showed signs of filling in. She was also relieved of neurotic symptoms from other parts of the body. Simultaneously with this constitutional treatment an incision was made along the right alveolar border of the lower jaw, reaching to the osseous surface, eucaine being used as an anæsthetic, and some purulent discharge was evacuated. The cavity was daily syringed with carbolic acid lotion, and an antiseptic mouth wash was used. Notwithstanding, the swelling rapidly increased and caused intense pain. Four leeches were applied externally, giving temporary relief, followed by purulent discharge through one of the leech bites. Shortly afterwards the sequestrum could be felt by a probe loose in its cavity. On December 1 three grains of eucaine in solution were injected along the alveolus, and the discharging cavity was enlarged. The sequestrum was drawn up by the forceps and was removed from the cavity by the patient with her fingers. Still the necrosis kept on creeping towards the symphysis. Profiting by the experience of Sir J. Tomes[1] I adopted "a less conservative line of treatment" and removed all the teeth, with the result that the purulent discharge ceased and the pain and swelling subsided. The so-called hysterical symptoms disappeared and appetite and sleep were restored. After a gradual decline in health and weight for five years the patient regained her weight in three months, weighing 11 st. in April last. It is needless to state that during her prolonged illness she had been treated for many ills that flesh is heir to and had swallowed as many patent nostrums as she could get. The case is remarkable for the long suffering of the patient, the easy removal of the sequestrum, and the rapid recovery.—*Lancet.*

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[1] The *Practitioner*, vol. xlii., 1889, p. 418.

The Teeth of the Tibetans.

MR. A. H. SAVAGE LANDOR, in his book entitled "In the Forbidden Land," vol. i, p. 305, says :—"In nearly all cases that I examined, the teeth were, even in young men, so loose, decayed, and broken as to make me feel quite sorry for their owners, and during the whole time I was in Tibet—and I came in contact with several thousand people—I believe that I could almost count on my fingers the sets of teeth that appeared quite regular, healthy and strong. As a rule, the women had better teeth than the men. No doubt the admixture of bad blood in the Tibetan race contributes a great deal to the unevenness and malformation of their teeth, and if we add the fact that the corruption of the blood, even apart from disease, is very great, owing to their peculiar laws of marriage, it is not surprising that the services of dentists are everywhere required. The teeth of Tibetans are generally of such a brittle nature that the dentist of Tibet—usually a Lama and a blacksmith as well—has devised an ingenious way of protecting them from further destruction by means of a silver cap encasing the broken tooth. I once saw a man with all his front teeth covered in this fashion, and as the dentist who had attended him had constructed the small cases apparently with no regard to shape or comfort, but had made most of them end in a point for mastication's sake, the poor man had a ghastly appearance every time he opened his mouth."

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[1] "A System of Dental Surgery," p. 440.

Editorials.

The Teeth of School Children.

AMONGST the numerous questions with which our Association has endeavoured to deal is the one connected with the condition of children's teeth, and the fact that the recent Annual Meeting was the first for several years at which some report was not forthcoming seems a good reason for writing a few words in the JOURNAL.

It is true that both the Presidential Addresses and the Hon. Secretary's Report alluded to the formation of the new School Dentists' Society, and the fact that the School Children's Committee has ceased to exist is probably known to our readers. These two matters are, however, more closely related to each other than may be at first sight apparent, and it is only due to the Association that it should be recognised that the possibility of the formation of the new Society has, to a great extent, come about in consequence of the labours of the old committee and those who contributed to the collective investigation upon school children's teeth. One of the principal results of this investigation was to show, to those having the care of children, the necessity for the appointment of dental surgeons in order to remedy and control the dental disease found to be so widely prevalent. Many of these posts have been created, and it soon became apparent that the holders of them should associate themselves, and that opportunities should be afforded for interchange of ideas and experiences in connection with the special work. It will be remembered that it has been decided to issue the Reports of the School Children's Committee in pamphlet form. They are now in the printers' hands, and our members should not lose the opportunity of possessing, in convenient form for study and reference, the mass of statistics, records, remarks and recommendations bearing upon such an important subject.

There is still much to be done in the way of educating the public mind upon the question ; it is of course a matter which requires cautious handling, but, at all events, members of the profession should make themselves acquainted with the facts and be able to give authoritative answers when questioned upon the subject. These questions are becoming much more frequent, for already a considerable amount of interest is displayed by the lay mind. The present number of *The Nineteenth Century*, for instance, contains a *résumé* of most of the work recently done, and, although presented by a layman, and not free from inaccuracy, it shows that the editor considers the subject a fit one to place before the general reader. Military authorities, too, have been obliged to pay some attention to the matter. The oft-quoted statement of Mr. Wyndham, that more than 1,700 would-be recruits were rejected last year by medical inspectors of the Army for defective teeth, when otherwise eligible, is of course well known to our readers. No more practical demonstration, we think, could more forcibly direct attention to the subject under discussion. For, although an attempt is to be made to secure some of these men for the Service by empowering the medical officers to obtain special dental advice (and presumably treatment), yet we cannot doubt that it must become clear that this is beginning at the wrong end, and that proper provision of expert assistance in early life is the more humane, and certainly the more economic, method.

The School Dentists' Society has recently published the requirements of both the Naval and Military Services as regards the teeth of candidates. In the latter, considerable latitude appears to be allowed to the medical officers, but in both sets of rules there are points which should be thoroughly considered by the modern dental surgeon, who from time to time will be consulted by young men applying for commissions. Take, for instance, the following case:—"A tooth is to be considered defective when it cannot be made permanently serviceable by dental repair." The Service dental requirements are intimately associated with the school children's dental treatment, and we feel that no apology is due for inviting our members to make themselves acquainted with the professional aspects of this national question.

Correspondence.

We do not hold ourselves responsible for the views expressed by our correspondents.

A University Degree.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—I have read with some interest the discussion on the desirability of a university degree for dental surgeons, and with which has been associated a modification of the education of dentists in medicine and surgery in favour of an inclination towards the teaching of the exact sciences. Without entering into the merits of this question, I beg to forward to you for publication, if you think fit, three characteristic letters written by my late friend Sir John Tomes during the early part of his career. To your readers they should be interesting as affording a contrast between the possibilities before a newly qualified dentist of the present day and the modest expectations of Sir John Tomes in his early days. To me they are interesting as illustrating the thorough way in which he worked at whatever he put his hand to and the clear way in which he kept his object steadily before him, also for the terse way in which he expresses himself, by the use of words having the true Anglo-Saxon pith as used by him. Taken in relation to the discussion above alluded to, I was astonished to find that Sir John Tomes was quoted in favour of the views of the artists, artisans, or mechanists, or whatever designation they may prefer. I do not think that these letters, in spirit or in substance, countenance this view. I spent much of my time with Mr. Tomes when he and others were engaged in framing and pushing the Dentists Act, and all my recollections of him lead me to the conviction that his opinions were quite the opposite to those sought to be deduced from his writings and utterances.

Yours truly,
C. S.

DEAR HARRIS[1],—Hold! no more cursing—I should have written before but my affairs were not fixed. I am elected as Senior House Surgeon for the ensuing six months. Mr. —— was not rejected, but recommended by the Medical Committee to retire. Mr. Stanton is going up to the Hall shortly; for myself I take things easy. To the Hall I shall not go, for the College my name is down. At the University we had two days' written exam. and two days' *viva voce*, a confounded lot of it and be hanged to them. Kiernan[2] spends an hour or two with me most days, Burrell has left town, Bowman[3] presides in the dissecting room. This year

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[1] Mr. Harris was a fellow student who had qualified and gone into general practice, in which he was very successful. Sir John Tomes held the post of senior house surgeon before he was qualified.

[2] Kiernan afterwards became famous for his discoveries in the structure of the liver. To this day some of his figures remain in the latest edition of Quain and Sharpey.

[3] This was William Bowman, afterwards the great ophthalmic surgeon, who became distinguished for his researches in the histology of various organs, but especially of muscle and of the kidney; and just as in the case of Kiernan and Sir John Tomes, his work stands good in great part to the present day. He became surgeon to King's College Hospital,

I have cut off four fingers since I have been in the Hospital about four months, and when the six have passed I shall have held the office ten. We have had some bad railroad accidents of late. The Hospital is very full. I keep for myself an account of every patient that comes into the surgical wards, and every *post mortem* that occurs. I have some new things to tell the world about bone.

In the way of preparations there is nothing that I do not want, but more especially such as have some connection with bone as a natural or morbid product.

You will get rich while I grow poorer. I have some fine specimens in teeth ; cavities in teeth, which cavities are lined by a membrane, and have no communication with the exterior of the tooth or its pulp cavity. I should like some bats, or whatever is curious. Snakes I have. You have seen something of the controversy between Kiernan and Dr. Hake. If you do not take the *Gazette* or *Lancet* you must be hung. Oh! Harris, you are right and I am wrong. You are getting money, I am losing it. You are selling your time, I am giving it away, and with it money ; however, we are but grass, and grass withers. What will it matter when we wither? How much money have you received from your practice? Write and don't be so long about it. I am going to examine some menstrual fluid.

Middlesex Hospital, Yours most sincerely,
September 15, 1839. JOHN TOMES.

DEAR HARRIS,—You will curse me with ten thousand curses for not having sent your parcel before this, but I must get some of them taken off when the explanation is given. Mr. Harding sent me the large parcel some three weeks since ; on the next day I was sent for into the country to see a relative who was about to die, and is dead now. You see I have returned, and I sent you them as directed. I have lost your letter. If I am not right in the things pray let me know. Your knife has cut off an arm in Arnott's[1] hands.

I have made up my mind to become a dentist. My friends are willing. Kiernan, when I told him my resolution, said my fortune was made. I wish it may be so. In three weeks you will see a paper by me on the structure of bone, which will be the best thing I shall ever do. I am heartily glad you are doing so well. I fully acknowledge that you have beaten me, and to my opinion, Bartram also. My fresh plan will carry me to good fortune or great poverty ; the first I hope, the second I doubt. There is this consolation, that every one thinks that I have done well to take up Dental Surgery, in which capacity I shall have a public appoint-

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but comparatively early devoted himself to the special study of the eye, and relinquished the practice of general surgery. He was created a baronet some years ago. It is an interesting coincidence that the son of this gentleman, William Bowman, acting as a friendly solicitor, greatly facilitated the drafting of the Dentists Act, 1878.

[1] Many years surgeon to the hospital ; became President of the Royal College of Surgeons and surgeon to the Queen ; and was greatly instrumental in inducing the College of Surgeons to obtain the necessary powers to grant a dental licence.

ment. Arnott and Watson[1] leave King's College; it is not known who will succeed them in their places. Bowman is working hard as Demonstrator.

Middlesex Hospital,
January 3, 1840.

Yours sincerely,
JOHN TOMES.

DEAR HARRIS,—First let me thank you for your letter; next I will deny that I had forgotten you entirely; thirdly, I am not going to get married. I have been in the country. I have taken a house situated as above, there to commence jaw tinkering, which I purpose doing in about three weeks, that is, when I have got my house furnished, and the country folks gone. At present I am working hard at the mechanical part of the craft, which I now understand tolerably; however, I shall go on with it at present, till I am quite master of the work, though probably I shall never do much of that sort of work myself. I shall (see, I am liberal of my "I shalls") be Surgeon Dentist to King's College Hospital before long. I believe that I shall succeed well and rapidly. Bell[2] tells me that it will be my lot to make not less than £200 the first year, and go on by doubling it. I wish I may get it. Send me some patients if any people are coming up from your town to have teeth made, a thing very common. I take no fee less than £1 1s. professedly, unless the patient come by the recommendation of some friend who tells me they are poor. I purpose working at extracting from nine till eleven every morning at poor non-paying patients.[3] I know of six or eight jobs that I shall have as soon as I start. But enough of our own affairs. Watson and Arnott seem very well pleased with their honorary appointments at King's College Hospital. They should have given up the Middlesex. King's College Hospital is a very nice place indeed; at present they have patients 100 and want more. Stanton is going to live with me for the next year or two; his health is by no means good, and unless it improves I think it of no use his attempting to practise. He was staying at my father's for some weeks, but his bodily health seemed worse in the country than in town. Spasmodic asthma, his disease, is as fine a curse coming from a benevolent Creator as a man can well fancy.

How do you hold theology just now? There is no humbug in it, I calculate. There is a row in the Middlesex Hospital School amongst the learned lecturers. The officers of the hospital have taken upon themselves to nominate and appoint new men in the place of Shaw[4], Coplan[5], &c., who have resigned, and that, too, without consulting the remaining lecturers. I wish the school was distributed to the canines for all that it is good for. Mayo[1] offered me a lectureship upon anatomy and physiology, which I refused without thinking it worth while to consider the matter further than at the moment. I never will lecture upon any subject except teeth, and something relating to them, and not upon that at any place inferior to King's.

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[1] Many years physician to the hospital; was author of the "Classical Principles and Practice of Physic," a model of style and sound teaching; became President of the College of Physicians and Physician to the Queen. He attended the Prince Consort in his fatal illness.

[2] Thomas Bell, F.O.S., the comparative anatomist and author of "Bell on the Teeth." He practised in the City, and Mr. Salter was subsequently associated with him.

[3] This was not uncommon in those early days when no institutions existed to render gratuitous dental help to the poor.

[4] Alexander Shaw was a nephew of the physiologist and surgeon, Sir Charles Bell. He was for very many years surgeon to the Middlesex Hospital.

[5] Author of the "Dictionary of Medicine," once greatly in vogue.

Come up to town and see me; I purpose keeping an empty bed for my friends. My drawing-room floor I shall let for the first year or two.

41, *Mortimer Street, Cavendish Square.*[2]
(Not dated.)

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—As I have been subjected to many inquiries, I shall be glad if you will allow me to say that the dental mechanic, whose name resembles my own, advertising in the last issue of the JOURNAL, residing at Hampstead, and working "under the supervision of an L.D.S.Eng.," is totally unknown to me.

I am, yours faithfully,
MONTAGU F. HOPSON.

Grove House, 16, *Rosslyn Hill*,
Hampstead, *N.W.*
July 1, 1899.

The Position of Dentists in the South African Republic.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—I beg to send you, per this mail, a petition to the State Attorney in this State for the altering of the dental law here, which is a very open one and gives a qualified dentist no protection. We have been promised by the State Attorney that he will endeavour to meet our wishes on the subject, and if possible have the law as it now stands repealed, giving us more protection from the charlatan, with which we abound here.

I send you the petition with my colleagues' wishes here, as probably you might like to know, although not members of the British Dental Association of England, that we can unite, although abroad, and do something for the *locus standi* of our profession.

I am, sir,
Yours faithfully,
WILLIAM D. QUINN.

Johannesburg, *S.A.R.*,
June 5, 1899.

"Grants in Aid."

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—The Honorary Secretary of the Association having decided to call the most important meeting of the Representative Board in one of the summer holiday months, I regret that I am unable to be present.

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[1] Surgeon to the hospital and distinguished as a physiologist. His book upon physiology contained much that was original, and was long in favour as a text book.

[2] This house, situated in what is now Cavendish Place, has been pulled down. It was subsequently occupied by Mr. Christopher Heath, Dr. Meadows and Mr. J. H. Bailey, so that four large practices were built up in it.

I must therefore ask you to allow me to trespass upon your space in order to refer to the resolution submitted by Mr. F. J. Bennett at the Annual Meeting at Ipswich, as I understand that it will come up for consideration by the Board on July 13.

First of all, I would protest against the passing of such "pious" resolutions at the Annual Meetings of the Association. This is the third passed within the last five years. Members ought to have the courage of their convictions, and not pass resolutions and then shift the responsibility of interpreting them on the Representative Board. If Mr. Bennett thinks it expedient for the Association to give "grants in aid," why did he not propose a definite scheme, and ask that £10, £50, or £100 should be put aside during the current year for that purpose? He is not a member of the Board, and this body is left to guess at the intentions of the proposer. Consequently there is likely to be much waste of time.

I should imagine that there are few, if any, members of the Association who, *cæteris paribus*, do not approve of "grants in aid" *per se.* In fact, these are specially provided for by Article 3 of the Memorandum of the British Dental Association. The first part of Mr. F. J. Bennett's resolution is therefore a redundancy. Every member of the Association on his election necessarily assents to the principle of "grants in aid."

The only question which arises is as to its expediency in time; and here Mr. F. J. Bennett is delightfully vague. The Representative Board is "to decide as to the best means," &c.

The Association will attain its majority next year. During the twenty years of its existence, and with the utmost care and economical working, only some £1,500 or £1,600 have been put by as a Reserve Fund: that is at the rate of £75 per annum, out of an income which, from subscriptions alone, amounted last year to £1,000. With the probability that in the near future considerable expenditure may be incurred, a Reserve Fund of £1,500 is not much after twenty years of existence.

Further, notwithstanding the fact that the sum of 7s. per member is carried annually to the Journal account, and that this account received last year £450 for advertisements alone, the Journal was, during 1898, run at a loss of £40. The two previous years the Journal Committee, after years of toil and labour, had a surplus in hand. On this happy consummation the members straightway required an enlarged Journal, with consequent financial loss. Doubtless the Journal Committee will, in the course of time, make both sides of the account balance, but, until that be so, is it wise to vote "grants in aid"?

Again, the time is not far distant when the Association will deem it advisable that the secretarial work be put on a different footing. No member can fail to acknowledge and thoroughly appreciate the enormous amount of unrequited work which our Honorary Secretaries have done during the past twenty years. But many of us think that when the financial position of the Association is strong enough, much of the routine work now done by the Honorary Secretary ought, in justice to that gentleman, to be transferred to a paid Secretary. Briefly, for these reasons I regret that I am unable to endorse Mr. F. J. Bennett's resolution as to the expediency of the British Dental Association voting at this time "grants in aid."

In conclusion, let me say that I entirely concur in Mr. F. J. Bennett's wish that in every possible way original dental research should be encouraged; but the British Dental Association has many objects in view, and the encouragement of dental research is only one, and not the most important of them. There exists in Great Britain a dental society which is purely scientific in its objects. It has an accumulated fund of £4,750. The Chairman of the Representative Board is the President of that Society, also its Curator, and therefore Mr. F. J. Bennett is not without influence. Has he applied to that Society for a "grant in aid"? If so, has he been refused? If he has not applied, why not? Perhaps Mr. F. J. Bennett will kindly tell us.

Your obedient servant,

163, *Bath Street*, *Glasgow*, REES PRICE.
July 4, 1899.

Association Intelligence.

The Honorary Secretary of the Association desires to emphasise the statement he has on several occasions previously made, viz., that anonymous communications relating to cases of irregular practices, or alleged infringements of the Dentists Act, cannot receive from him that attention he would wish to bestow upon them, or they may deserve.

ANNUAL GENERAL MEETING.

The following demonstrations were given at the Ipswich Meeting.[1]

A Method of Taking Impressions of the Lower Jaw, in Composition, without Drags, in Cases where Bicuspid and Molars lean towards each other across a Gap.

BY R. P. LENNOX.

Mr. PRESIDENT and GENTLEMEN,—It is my purpose to explain in as few words as possible a method I have devised to meet cases which I confess I used, for many years, to approach with fear and trembling. I mean cases such as that of which I here show a model. You wil realise at sight that the difficulty I refer to is the taking of an impression for such a model which shall be free from the drags that necessarily present themselves when teeth lean towards each other as in this case, and the impression is taken with composition in the ordinary way.

It must be now some two years or more ago at least since I read a discussion held at a meeting of the Odontological Society, upon methods of dealing with this difficulty, and was struck by the inefficacy of the methods proposed. Up to that time I had been accustomed to take the best impression I could get by the usual method and to rely upon my judgment for the rest, but this discussion aroused me to the fact that people were seeking for something better, and set me upon trying if I could do anything to help.

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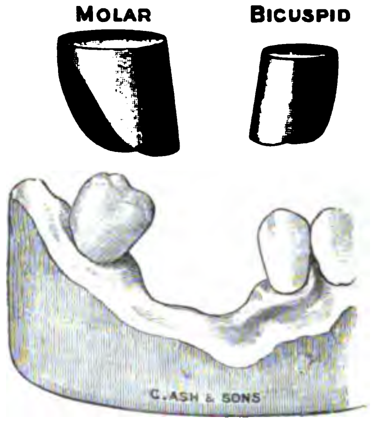
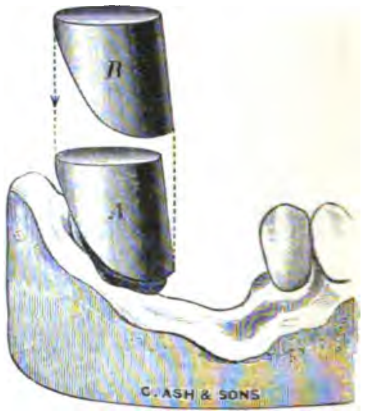
[1] We shall be glad if other gentlemen who demonstrated at Ipswich will send in descriptions of their demonstrations, together with any blocks they may wish used for illustrating them.

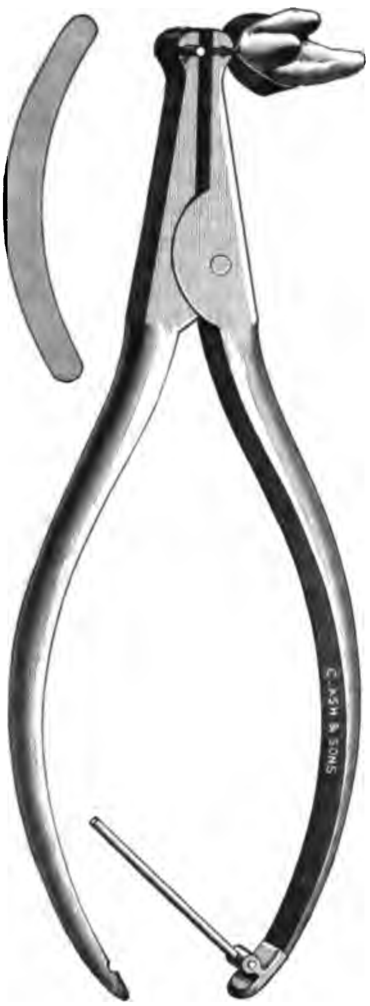
It would serve no purpose to discuss here the methods hitherto proposed. Those of you who know them will be able to compare them with that which I am about to explain and to form your own judgments upon the merits of each.





I have here a pair of conical caps, fitting accurately the one within the other. I fill the inner cap with hard composition and so place the pair of caps upon the leaning tooth that the outer slant surface of the cone forms an obtuse angle with the gum. If necessary, I place a similar pair of caps upon the tooth at the other end of the breach which presents the difficulty to be met. I then take an impression in the ordinary way. On removing it, owing to the form of the caps and the way in which they have been placed upon the tooth, the outer cap of each pair readily leaves the inner, and comes away in the impression. The inner cap is then removed, not of course by raising it vertically, which would drag the impression it contains, but by humouring it and removing it in the line of least resistance. The model I have here is evidence enough of the success with which this may be done. It only remains to replace the inner cap in the outer sitting in the impression, secure the caps together with wax, and to cast and draw the model in the usual way. The model I have here is a duplicate of a case in practice, and I need hardly do more than point out, that as a result of the method, the teeth are fairly and sufficiently correct, while the gum upon which the plate will rest is absolutely so.

Mr. R. P. Lennox also showed a pair of pliers of original design for carrying and adjusting a copper strip to a root preparatory to crowning it by the Fusible Metal Mandrel method. This pair of pliers was of the kind whose chops open on the handles being closed. A crosswise slot was cut in the chops parallel to the hinge of the pliers and rather deeper than the width of the copper strip to be carried. About midway of the slot in each chop, the slot was widened by drilling a hole quite through the chop, these holes also being parallel to the hinges of the pliers. In using the pliers a copper strip is bent into a loop so as to bring the two ends together, and the closed ends are passed into the slot in the pliers, so that the extremities just reach the outer side of one of the chops, and a copper loop is formed outside the other chop. The strip is secured in this position by pushing a pin into the hole in the chop which is farthest from the copper loop. So far the chops have been kept closed by a wire hinged at the extremity of one of the handles and dropping into a notch at the extremity of the other handle. Things being in this position, the loop is slipped over the root to be crowned, the handles are released, and pressed together by the grasp of the hand. This opens the chops, and that chop in which the slip is not fixed slides along the strip up to the root, thus closing the loop tightly about the root, and effecting the desired adjustment almost instantaneously. The copper strip referred to is of the curved form described by Mr. Lennox in his "Fusible Metal" paper (and in his book).



Mr. **Breward Neale** thought the members were all indebted to Mr. Lennox for the most ingenious and practical way in which he had dealt with what was, no doubt, one of the greatest difficulties in taking impressions. The method appeared to be the best possible way of dealing with the difficulty. He had discussed the matter at odd times with Mr. Lennox. He always took his impressions in plaster, which Mr. Lennox considered unnecessary, and, seeing the little caps that he had shown that day, he could quite see how a very good impression could be obtained by Mr. Lennox's method, which was not possible by any other method except by plaster.

Mr. H. LLOYD WILLIAMS said it struck him that the method would be most useful in taking plaster impressions of such a very under-cut gap as the model which Mr. Lennox had shown. Sometimes the teeth were very loose and one did not wish to put any strain on them. Various methods had been adopted, and he should like to know whether Mr. Lennox's method had been used with plaster.

Mr. LENNOX said he had only taken two plaster impressions in his life, and he had been working for something like thirty-five years. He had never used plaster with his method.

A Home-made Nose-piece for Prolonging Nitrous Oxide Anæsthesia.

Messrs. JONES and LENNOX demonstrated the use of a nose-piece made by Mr. Lennox for prolonging nitrous oxide anæsthesia, by Alfred Coleman's method. Mr. Constant kindly submitted himself as a subject for anæsthesia, and the operation was watched by, among others, Messrs. Mummery and Woodhouse, the President taking notes as to the duration of anæsthesia, while Mr. Woodhouse watched the patient, who went under quickly and quietly, and was kept under for two minutes, which might have been many more had not those looking on declared that enough had been done to satisfy them. The gas, on issuing from the bottle, passed at once into a coil of copper tubing about seven feet in length, immersed in a reservoir of boiling water. At the outlet end of this coil was a two-way tap, one orifice of which led to the ordinary bag and face-piece, while the other led to a smaller bag, at the outlet of which was a second tap. This tap, when opened, admitted the gas to a tube with two branches, passing one on either side of the patient's head, and attached to tubes entering the nose-piece on either side of the patient's nose. It may be interesting to note that the nose-piece, being home-made, was of vulcanite into which Mr. Lennox had vulcanised two silver tubes which opened into the nose-piece exactly under the nostrils of the patient, and outside lay close to the patient's check in a direction towards the top of the ear. At the outset of the operation the nose-piece lay upon the patient's forehead, being kept in position by the tubes passing from it. The face-piece was applied and the gas passed into it from the two-way tap. Then, when the patient was pronounced properly anæsthetised, a quarter turn of the two-way tap closed the outlet to the face-piece and opened that to the nose-piece, the bag in connection with which had been distended with gas prior to the application to the face-piece. The face-piece being removed and the nose-piece placed in position, the tap admitting the gas to the branched tube leading to the nose-piece was at once opened and the patient was kept in a state of anæsthesia for two minutes, as before stated, a pad of soft rubber applied to the edge of the nose-piece, and pressed by it against the cheek, preventing the gas from escaping between the nose-piece and the cheek. The nose-piece differs from that used by Mr. Coleman in having two small tubes leading over the ears to either nostril, instead of one large tube passing over the top of the head. The idea of passing the gas through a coil of copper tubing immersed in hot water was borrowed from Mr. Coxon.

A Method for Prolonging Nitrous Oxide Anæsthesia by means of a Tube passing through Stem of Mouth Gag.

BY WILLIAM J. STEPHENS, L.R.C.P.,
ANÆSTHETIST, BRIGHTON DENTAL HOSPITAL,
AND
DOUGLAS E. CAUSH, L.D.S.,
CONSULTING DENTAL SURGEON, BRIGHTON DENTAL HOSPITAL.

FOR many years past it has been the aim of the dentist to have a simple, yet at the same time an efficient apparatus for prolonging gas anæsthesia, and to Mr. Coxon, of Wisbech, is the honour due for introduction of a method of obtaining this result by means of a mouth tube.

Soon after the introduction of Mr. Coxon's method we produced a modification of this method, and gave a demonstration in Brighton at one of the Southern Counties Branch meetings. Since then we have been using the apparatus, with certain improvements, at the Brighton Dental Hospital, and with this apparatus we are about to demonstrate to-day.

Our thanks are also due to Mr. John Wood, of Brighton, who brought before our notice the spring gag we consider the best to which to attach the tube.

The apparatus consists of a small (1½ gallon) bag, to take the place of the ordinary rubber bag generally used, and in the tube immediately under the stop-cock of the face-piece a metal tube is inserted; to this tube is attached about three feet of flexible rubber tubing, whilst at the other end of the rubber tubing a spring gag, with a short piece of metal tube passing through the upper portion of the gag, is attached by means of a screw union; this latter works loosely, so that the rubber tube can be easily moved out of the way of the operator. The method of using the apparatus is as follows. After the gag is adjusted to the mouth in the ordinary way, the face-piece is placed in position, and gas administered in the usual manner until the patient is thoroughly anæsthetised; the face-piece is then removed from the face of the patient, the nose compressed by the administrator, and the gas turned off at the face-piece stop-cock. The bag being kept fully distended, a continuous stream of gas is forced into the mouth of the patient, and with considerable pressure from the rubber bag; this pressure must be governed by the condition of the patient. We do not claim to have a perfect anæsthetic, but rather by this simple apparatus it is possible to considerably lengthen the time under which the patient continues anæsthetised.

The advantages claimed for this method are ease of adjustment and simplicity of apparatus; as the administrator has not to keep the tube in position, he is more free to render assistance to the operator.

The tube which passes through the gag being short and bent to an appropriate angle, there is little or no probability of the mouth of the patient being injured through any sudden movement. The administrator has the patient under observation, and is able to control the length and amount of anæsthesia at his own discretion, according to the requirements of the operator or the amount of work to be done.

Porcelain Inlay Work.

By ARTHUR S. UNDERWOOD, M.R.C.S., L.D.S.Eng.

The question of the employment of portions of mineral teeth to make good the ravages of caries is perhaps too practical to admit of satisfactory treatment in a paper. If, however, the paper be short and provoke a good discussion, it may answer a useful purpose.

The advantages of pieces of mineral teeth over any other kind of stopping material appear to be overwhelming. The material is indestructible, no chemical or mechanical agency can affect it, it can never wear out or shrink. As a useful biting surface it is superior to any other substance, harder and infinitely more durable than solid gold. As a protection to tender parts, exposed nerves, &c., it is far superior to any other form of cap because it cannot shift its position, and if suitably hollowed out is mechanically incapable of pressing upon the parts that it is desired to protect. It is far more cleanly than any other material because of its perfect surface, which age and exposure does not render less perfect. If a cavity extend below the level of the soft parts it is the most satisfactory surface for gums to rest against. Its appearance is (if care be taken in the selection) so exactly like the rest of the tooth that it is indistinguishable from it. Bands and wires sustaining dentures may rest upon it with impunity.

By means of porcelain it is possible to restore honeycombed or fractured incisors without interfering with the vitality of the pulp, and consequently without weakening the chances of longevity of the tooth.

Against these advantages I must balance some disadvantages. (1) Cutting the inlays is a very trying proceeding for the operator, taking a good long time, and often just when a piece is nearly perfect a mistaken touch of the wheel may quite spoil it and the whole thing has to be done over again. (2) The piece may, and occasionally does, come out. My own experience is that this is a much rarer event than I should have expected, and when it has happened it always proved to be because I had not been sufficiently careful about the mechanical security of the piece. (3) If the fitting is not exact, too much cement will be exposed at the edge, and this will of course be liable to the ordinary weaknesses of a cement stopping.

All these remarks apply solely to inlays made of pieces of mineral teeth in which the polished surface is preserved, and not to those in which it is ground off. I have seen many inlays made by the insertion of a piece cut off from a porcelain rod, and ground down and polished *in situ*, and I never have found that the surface was really equal to the undisturbed surface of one of Ash's teeth; moreover, a change of attitude will frequently cause such pieces to show a bluish-grey tint that quite spoils the appearance; the process of cutting and fitting is much simpler, but the result is not, to my mind, so good.

A very few words on the *modus operandi* will perhaps be forgiven, though I am afraid there is little that is new to many of the members in the process.

I prefer to take a model of the cavity and have the porcelain tooth cut down roughly in the workroom. I know of no satisfactory material for taking these impressions; all my models have been more or less bad, and I do not trust them much; perhaps gutta percha is the least disappointing. The size and shape of the cavity are very liable to become distorted in the act of removing the impression. I am greatly hoping to learn of some better plan than I know of at present from some of my hearers to-day.

When the piece is nearly a perfect fit it may be finished with a diamond wheel on the engine, and finally some sort of button cut in the back of it to help hold it in place; the cavity is then filled with Harvard cement, and the piece pushed into place, the superfluous osteo wiped away, and the whole varnished over. Incidentally I may say that the diamond wheel which I bought about twelve years ago is still perfectly effective, while some I bought last year are quite worthless, and could only be used once; I have no idea why this is so.

Now a word as to the durability of these stoppings. Of course it is all a question of their remaining in place, and the cement in which they are imbedded remaining intact. When first I heard of the idea, in an able paper published in the Association JOURNAL by Mr. Dall, of Glasgow, who has contributed so many invaluable and original practical methods to our science, I made a series of inlays with the imperfect tools then obtainable (there were no carborundum or diamond wheels), and decided to watch the result for seven years before attempting any more. At the end of seven years these first inlays were unchanged and undisturbed, and I see them two or three times a year, and they are now all right with the exception of one, which came out and had to be replaced. They are now about thirteen years old; no decay has happened at the edges. At first I only employed them in cavities that were conspicuous and easy to cut; later on I became more venturesome, and restored big cavities in back teeth in the same way. I then began employing inlays in erosion cavities, even in teeth that were rather loose. Four times I have restored corners of incisors that had been chipped off in this manner in teeth I should formerly have cut down and pivoted. One very pretty case I must endeavour to describe.

A girl of 14 had very honeycombed upper centrals; the cervical half of each tooth was perfect, but the rest was represented by a little hard, brown, perforated mass of dentine like a tiny brown arch. I fitting them, and the result was so good that, though a line may be overlaid these honeycombed portions with a pair of inlays exactly seen on looking closely, the teeth are practically perfect, and as the patient is now about 18 years of age it is not likely that people will peer too closely into her mouth—at least with the object of finding fault. In all these cases I do not pretend that the appearance is as perfect as a good pivot, but the point is that the pulps are alive and healthy, which, to my mind, is a huge advantage.

In cavities where it is desirable that the band of a denture should rest upon the stopping, the advantages of porcelain are obvious.

I greatly prefer pieces of Ash's teeth, with their natural surfaces intact, to pieces of porcelain ground down in the mouth, and I do not like the method of cutting the cavity to fit the stick of porcelain, instead of cutting the porcelain to suit the shape of the cavity. First, with regard to the surface, I have been often assured that it is possible to restore the polish of a surface that has been ground, but I have never succeeded in doing it, and I have never seen a case where it has been done; I should be very grateful to anyone who would show me that I am wrong about the technical point, and tell me how the thing can be done.

Then, as to cutting a perfectly round cavity to suit a rod of a definite calibre, it seems to me to involve a sacrifice of sound tissue, of which I do not approve; moreover, the symmetry of the inlay seems to me to render it conspicuous.

Lastly, the choice of tint does not seem to me so wide and varied in these special rods and discs.

With regard to the diamond points, I should like to know whether the experience of other members is as unsatisfactory as mine. I have tried three, and they were all worthless. If points could be made as good and durable in texture as my old wheel they would be invaluable, as they could be fixed on the latter and made to hollow out mineral teeth quite rapidly and with exactitude.

The few specimens which I have brought with me are necessarily not so effective as inlays in living teeth, but they show the idea. They were prepared by a pupil of mine—Mr. C. F. Tessier—who is specially clever at this work, and will, I hope, before long be demonstrating it on his own account. It will easily be seen that the manipulation is so delicate and finicking that very sharp eyesight and neat handling are required; moreover, the strain placed upon one's patience and equanimity is perhaps not always good for one's moral character; but the results, when successful, make up for everything.

Representative Board.

Saturday, July 15, 2.45 *p.m.*

AGENDA.

Minutes.

Matters arising out of Minutes.

Treasurer's Report.

Election of a Public Auditor of the Association's Accounts.

Election of the Journal and Finance Committee (six members).

Election of three Members to the Business Committee.

"Grants in Aid of Scientific Research Work,"—the principle of which was affirmed at the recent Annual General Meeting held in Ipswich.—Question now remitted to the Board, viz.: "As to the best means of carrying the principle into effect." Letters from Mr. F. J. Bennett and Mr. C. Rees Price on the subject.

The date of the Annual General Meeting in 1900.

Reports from the Business Committee on the Companies Acts Amendment Bill, &c.

And other business.

The meeting takes place too late for us to be able to give an account of it in this number, but we hope to do so in our next issue.

Eastern Counties Branch.

ANNUAL MEETING, 1899.

THE Annual Meeting of the above Branch was held at the Town Hall Ipswich, on Saturday, May 20, 1899. The President, Mr. A. S. Jones, L.D.S. Eng., in the chair.

Business only was conducted, as the rest of the meeting was merged in that of the British Dental Association, which was taking place at the same place and time.

The HON. SECRETARY'S report noted that during the past seven months the following new members had been added to the Branch, and some of them to the Association:—Messrs. G. Bates, E. Blain, W. H. Baker, F. E. Clarke,

G. Betts, C. A. Malone, H. L. Tracey, N. Tracey, and J. C. Wing. The total membership now equals 59.

The HON. TREASURER, Mr. H. F. White, showed in his report a balance at the bank of £20.

Mr. Howard Mummery was elected with acclamation an honorary member of the Branch.

In 1900 the Annual Meeting will be held in Wisbech, with Mr. S. A. T. Coxon, L.D.S., as President.

Messrs. W. H. Hope, A. Jones, Fisk, Lennox, and Cunningham were re-elected as Members of the Council; and Mr. R. P. Lennox to the Representative Board.

On the conclusion of business, Mr. W. H. HOPE, the new President, addressed a few remarks to the meeting, which shortly afterwards terminated with votes of thanks to the late President, Mr. A. S. Jones.

Scottish Branch.

ANNUAL GENERAL MEETING.

THE Annual Meeting of the Scottish Branch was held on Friday, June 9, in the Palace Hotel, Inverness. Mr. C. Rees Price, the PRESIDENT, occupied the chair, and the others present were:—Messrs. W. Bowman MacLeod (Edinburgh); J. Leslie Fraser (Inverness); J. A. Biggs (Glasgow); Walter Campbell (Dundee); J. G. S. Angus (Glasgow); Jas. McCash (Glasgow); A. B. Young (Glasgow); Arthur Heron (Elgin); Wm. Taylor (Glasgow); G. W. Watson (Edinburgh); Gordon R. Shiach (Elgin); W. H. Williamson (Aberdeen); Thos. Wilson (Glasgow); D. Robertson Campbell (Edinburgh); A. K. Finlayson (Edinburgh); W. Foulds Martin (Glasgow); P. S. Walker (Dundee); W. Graham Campbell (Dundee); J. Colquhoun Gardner (Glasgow); Sewell Simmons (Edinburgh); Peter Cumming (Falkirk); R. Keith Common (Stirling); R. S. Grant (Glasgow); Ernest J. Wallis (Alloa); John Cromar, jun. (Aberdeen); Jas. Stewart (Coatbridge); D. Baillie Wilson (Edinburgh). Messrs. B. E. James, J. Kyle Mackintosh and T. L. Nash were also present as visitors.

Messrs. J. Craig-Cameron, L.D.S.Edin. (Leith), and Jas. P. Thomson, L.D.S.Glas. (Glasgow), were unanimously elected members of the Branch. The following gentlemen were also duly proposed and seconded for membership, and come up for election at the next meeting:—Messrs. John Gillespie, L.D.S.Glas. (Irvine); H. H. Chapman, L.D.S.Edin. (Edinburgh); J. D. H. Jamieson, L.D.S.Edin. (Edinburgh); J. Kyle Mackintosh, L.D.S.Edin. (Inverness).

The HON. SECRETARY (Mr. D. Baillie Wilson, Edinburgh) then submitted the following Report:—

Mr. PRESIDENT and GENTLEMEN,—I have great pleasure in laying before you the Fourth Annual Report of the Scottish Branch.

During the past year—which only dates from the Annual Meeting at the end of September last—three meetings have been held—at Lanark, Edinburgh and Glasgow. The last, a Demonstration Meeting, was a great success, and was particularly well attended.

The Council have met four times—twice at Glasgow, and once at Edinburgh and Inverness.

There have been eleven new members elected, but the membership has only increased by six, and now stands at ninety-two. Unfortunately two of the vacancies occur through death, and from this cause we have to deplore the loss of our old and valued friend, Mr. Andrew Wilson.

Matters of varying importance have been discussed during the year, but foremost amongst these stands the motion passed at Lanark, and amended later at Edinburgh. This motion empowered the Council to issue a Circular to the Medical Societies of Scotland, asking them to pass a resolution condemning the practice of medical men administering anæsthetics for unregistered persons practising dentistry. In the meantime, however, it was ascertained that the General Medical Council had this same subject under consideration, and your Council decided to await their decision. The outcome of their deliberations *you* have all seen, but the two classes most interested, *i.e.*, medical men and unregistered persons practising dentistry, have *not* had the matter brought under their notice, except perhaps unofficially by reading the resolution in some of the journals. It has therefore become a question as to what steps should be taken to make the decree of the General Medical Council more widely known, and your Councll have to-day decided to send a notice to every medical man in Scotland, drawing his attention to this deliverance.

The HON. TREASURER'S (Mr. E. J. Wallis, Alloa) Report showed that financially the Branch was in an eminently satisfactory position, the excess of income over expenditure for the past year being £18, leaving a balance in hand of over £52.

The PRESIDENT said, before adopting these reports he should be glad if the Hon. Secretary would read the reports of the East and West District Committees, which he thought would show that these committees had not been idle during the past seven months.

These having been read, Mr. Walter Campbell (Dundee) begged to move the adoption of the various reports, which he said were very satisfactory. Mr. James Stewart (Coatbridge) seconded the motion.

The PRESIDENT said that the Branch owed a debt of gratitude to Mr. Wallis for the manner in which he had managed their accounts during the past year. He had been very successful in getting in subscriptions and arrears, and they were starting the year with a very handsome balance to their credit. That, he thought, spoke very well for Mr. Wallis's work as Treasurer.

On the motion of Mr. J. A. Biggs (Glasgow), a vote of thanks was accorded to the officials for their work during the year, and the reports were then unanimously adopted.

ELECTION OF OFFICE-BEARERS.

Mr. WALTER CAMPBELL moved that the office-bearers, as suggested by the Council, be elected for the ensuing year. Mr. James McCash seconded, and the following list was at once agreed to :—*President:* J. Leslie Fraser, L.D.S. Edin.; *Vice-Presidents:* W. H. Williamson, M.D.Aber., L.D.S.Edin.; Jas. Stewart, L.D.S.Glas. (Coatbridge); *Council:* W. D. Anderson, L.R.C.P. & S. Edin., L.D.S.Glas.; R. Keith Common, L.D.S.Edin.; A. K. Finlayson, L.D.S. Edin.; C. Rees Price, L.D.S.Eng.; Wm. Taylor, L.D.S.Glas.; *Hon. Treasurer:* E. J. Wallis, L.D.S.I.; *Hon. Secretary:* D. Baillie Wilson, L.D.S.Edin.

Mr. BOWMAN MACLEOD was unanimously re-elected as Branch Member of the Representative Board.

The President then delivered his valedictory address,[1] and vacated the chair in favour of Mr. J. Leslie Fraser, who then delivered his inaugural address.[1]

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[1] To be published as an original communication.

Mr. MacLeod moved a very hearty vote of thanks to the President for his excellent address, and Mr. Rees Price said he had great pleasure in seconding the motion.

The vote of thanks having been very heartily accorded, the President briefly responded and said he would leave no stone unturned to merit the honour conferred upon him, and to uphold the dignity of the President's chair of the Scotland Branch.

The hour was now growing late, but before adjourning the meeting, Mr. Leslie Fraser brought forward several models, two of them contrasting the largest and smallest mouths encountered in his practice, the others showing the progress of a very complicated regulation case. He also showed a specimen of continuous gum work, and referred in very eulogistic terms to a new speed-regulating device which he had had adapted to his electric motor. Members had afterwards an opportunity of inspecting this at work, and were loud in its praise.

Mr. Keith Common (Stirling) exhibited a gag with aluminium tube leading through it, with which he had been experimenting for a year in the prolongation of anaesthesia with nitrous oxide. The results in his hands had been extremely satisfactory, and a list of cases which he brought up showed a record of anaesthesia extending from one minute to as long as three minutes fifteen seconds, while the number of extractions varied from seven to twenty-one teeth in the time at his disposal.

On the motion of Mr. Rees Price, a hearty vote of thanks was accorded to the President and also to Mr. Keith Common for their interesting casual communications.

Mr. Campbell (Dundee) moved a vote of thanks to Mr. Rees Price for his services as President of the Scottish Branch during the preceding two years. Mr. MacLeod seconded, and the vote having been heartily responded to, Mr. Rees Price, in a few words, expressed his thanks for the compliment and the meeting then terminated.

Saturday, June 10.

On Saturday the members had a most enjoyable excursion by steamer up the Caledonian Canal and Loch Ness as far as Foyers. By kind permission of the directors, they were conducted through the electrical department of the Foyers Aluminium Works, where the manager, Mr. Morrison, and his assistants were most unfailing in their attentions and very anxious to show and explain the many wonders to be seen. After being entertained to lunch by the President in the Foyers Hotel, the members were photographed and then proceeded to view the famous, but now alas sadly attenuated, Falls of Foyers.

On the return to Inverness, the Annual Dinner was done full justice to in the Palace Hotel. Mr. Leslie Fraser presided over a happy company of forty-two members and guests, while Mr. John Cromar, jun., proved a most efficient croupier. Amongst the guests present were: Councillor Guild; Mr. Wm. Anderson, Deputy Procurator-Fiscal for Inverness; Mr. Barron, Editor of *Inverness Courier*; and Drs. Forsyth, Kerr, Lang, Macfadyen, Moir and Murray; while letters regretting inability to be present were received from the Provost and Town Clerk of Inverness, &c.

The photograph taken of the members at Foyers has come out very successfully, and copies can be obtained from Messrs. Senior and Watson 6, Church Street, Inverness.

Central Counties Branch.

ANNUAL MEETING.

THIS was held in Birmingham on Friday, June 30, and Saturday, July 1.

The Council meeting was held in the library of the Medical Institute at 4.30. Present: Mr. J. T. Craig (President), in the chair; Messrs. A. E. Donagan, Dencer Whittles, W. M. Knott, H. R. F. Brooks, J. Mountford, J. Ernest Parrott, E. A. Vickery, Breward Neale, F W. Richards and A. T. Hilder.

The minutes of the previous meeting having been signed, the Hon. Secretary read letters of apology for non-attendance from Messrs. Huxley, Surman, Roff King and Howard.

The following gentlemen were elected members of the British Dental Association and of the Central Counties Branch:—Mr. A. Ward Shedden, L.R.C.P.Lond., M.R.C.S., L.D.S.Eng., 141, Lichfield Street, Walsall; Mr. A. H. Parrott, L.D.S.Eng., 9, Easy Row, Birmingham.

Letters of resignation from two members were read and directed to be held over until the next meeting.

The nominations of officers, &c., for the ensuing year was then proceeded with, and the reports of the Hon. Treasurer and Hon. Secretary received and adopted.

The general meeting of the members commenced at 5.30, Mr. J. T. Craig, President, in the chair. There were present also during the meetings Messrs. Amphlett, Cale-Matthews (Birmingham); H. R. F.Brooks (Banbury); T. C. Colledge (Stroud); K. Daman, A. E. Donagan, G. Foster, F. H. Goffe (Birmingham); F. W. Hands, J. L. Robertson (Cheltenham); W. Helyar (Bristol); A. T. Hilder, H. P. Joscelyne, W. M. Knott (Birmingham); F. J. Lankester (Leicester); C. D. Marson (Stafford); W. T. Nadin, J. Mountford, P. Naden, Breward Neale (Birmingham); R. H. Owen (Kidderminster); W. G. Owen (Wolverhampton); J. E. Parrott, F. W. Richards (Birmingham); T. S. Johnstone (Sutton Coldfield); R. J. Surman (Worcester); F. J. Thorman, H. Hordern (Leamington); E. A. Vickery (Coventry); W. Armstrong Vice (Leicester). Amongst the visitors present were Messrs. W. H. Dolamore, H. J. Paterson and E. Lloyd-Williams (London); Dr. McCardie and Dr. Sydney Short (Birmingham).

At the business meeting, the minutes of the last meeting having been read by the Secretary, they were adopted and signed.

The officers for the ensuing year were elected as follows:—President-elect, Mr. E. A. Vickery, L.D.S.I. (Coventry), proposed by Mr. BREWARD NEALE, seconded by Mr. DONAGAN, and carried unanimously; Vice-Presidents, Messrs. H. R. F. Brooks and J. T. Craig; for the Representative Board, Mr. H. R. F. Brooks; Council, Messrs. Huxley, Howard and Robertson (Messrs, Howard and Bevers retiring); Hon. Treasurer, Mr. J. Mountford (re-elected); Hon. Secretary, Mr. A. T. Hilder (re-elected); auditors, Messrs. A. W. Steynor and G. Foster.

The HON. TREASURER read his report, in which he stated that since the last Annual Meeting forty-eight members had paid their subscriptions. The number of those who had paid subscriptions for the current year was twenty-nine, leaving forty still to be collected, but many members left their payments until the Annual Meeting.

The expenditure during the past year had been slightly in excess of that of the year previous, the total amount being £17 17s. as compared with £16 18s. 3d. The balance in hand amounted now to £16 18s. 3d.

On the motion of Mr. Brooks, this was unanimously adopted.

The Hon. Secretary read his report as follows:—

Mr. PRESIDENT AND GENTLEMEN,—In presenting this Annual Report I think I can congratulate the Branch upon a successful past year of work. At the beginning was inaugurated a change in our methods in so far as a programme was drawn up, printed and circulated before the winter session began. This I think we shall all agree was a step in the right direction, and I hope it will be carried on. There have been four meetings of the members of the Branch, and five of the Council. The papers given were as follow:—"Treatment of Teeth with Pulp Complications," by Mr. G. F. Cale Matthews; "Present Day Conditions of Dental Pupilage," by Mr. Malcolm Knott; "The Application of Gutta Percha for the Preservation of Teeth," by Mr. F. W. Richards; "Some Sequelæ of Alveolar Abscess," by Mr. H. Percy Joscelyne.

Casual communications have been given by Mr. Breward Neale on some Methods of Regulation, and by Mr. Lankester on some Abnormalities in Teeth and a case of Regulation.

The attendances at the meetings of the Council have been satisfactory, and at our General Meetings there has been an average of sixteen.

Our last Annual Meeting at Worcester proved a very interesting one, and was well attended. The business part of the proceedings consisted of a short practical paper on "Formagen," by Mr. H. R. F. Brooks, and demonstrations by the following gentlemen:—Dr. McCardie, Nitrous Oxide Anæsthesia with Coxon's tube; Mr. Howard, Dove-tailed inlays; Mr. Vernon Knowles on the Making of Trial and Polishing Plates.

There was also given a demonstration by Mr. Rose, of Messrs. C. Ash and Sons, on the working of an electric furnace for porcelain work.

Considering the opportunities in a city without the conveniences for demonstrations that obtain in larger places, the meeting will bear comparison with any of our annual ones held outside Birmingham itself.

There have been five more members elected during the past year, and in addition two to-day, making a total of seven to be added to our roll, making seventy-two in all.

There have been lost to our Branch two gentlemen, members of other branches, who have resigned this.

We have to regret the loss during the year of Mr. McAdam, of Hereford, long a member of the Central Counties Branch, and one of its past presidents, to the widow of whom a letter of condolence was sent.

There has been a prosecution of an unregistered dental practitioner in this city, which I am pleased to say was entirely successful.

One resolution may be singled out as being a useful one, viz., that brought forward by Mr. Knott, and resulting in the placing of the President of the Branch upon the board of governors of the new university of Birmingham as an ex-officio member.

The Benevolent Fund has benefited by your generosity during the year to the extent of £2 18s., in addition, of course, to the annual subscriptions, which I am glad many of our members give—an example which I feel ought to be followed by many others.

In conclusion, I wish to thank you for the assistance and support I have received in my duties as your Hon. Secretary.

A. T. HILDER.

The foregoing report was adopted *nem. con.*

Mr. J. T. CRAIG then delivered his Valedictory Address, which was followed by Mr. A. E. DONAGAN'S Inaugural Address.[1]

Mr. VICKERY proposed and Mr. CRAIG seconded a vote of thanks to Mr. Donagan for his able and interesting address.

Mr. NEALE proposed and Mr. MOUNTFORD seconded a hearty vote of thanks to Mr. J. T. Craig for his services in the chair during the past twelve months. These proposals were passed with acclamation. This ended the proceedings.

At eight o'clock the Annual Dinner of the Branch took place at the Grand Hotel, the President (Mr. A. E. Donagan) in the chair. He was supported by Sir James Sawyer, M.D., F.R.C.P., Mr. Jordan Lloyd, M.B., F.R.C.S., Mr. J. W. Taylor, F.R.C.S., Mr. Gilbert Smith, F.R.C.S., Mr. Breward Neale, Mr. F. W. Richards, Mr. John Humphreys, Dr. Walter Jordan, Mr. J. T. Craig, and members and visitors to the number of thirty-five. The toasts were "The Queen," "The British Dental Association and Central Counties Branch," "The Medical Profession," "The Dental School," "The Visitors' and "The President." A vocal quartette sang at intervals during the evening.

On Saturday morning the demonstrations started at 9 45 at the Dental Hospital. List of demonstrations given:—"The Use of Tube Teeth in Prosthetic Dentistry," Mr. Malcolm Knott; "A Method of Regulating Superior Protrusion," Mr. Breward Neale; "Nitrous Oxide Anæsthesia prolonged by means of a Nose Piece," Mr. H. J. Paterson; "Submarine Gold Filling," Mr. F. W. Richards; "Use of Fusible Metal in Crown Impressions," Mr. H. R. F. Brooks; "Gold Filling with Smooth Pluggers," Mr. E. A. Vickery; "Vulcanite Work, using Swager," Mr. G. F. Cale-Matthews; "Method of Striking Tops for all-Gold Crowns," Mr. Vernon Knowles.

The anæsthesia in Mr. Paterson's demonstration was continued for ten and a quarter minutes, with the use of thirty gallons of gas only. This quantity compared with the amount used with the mouth tube is, considering the duration of the anæsthesia, worthy of notice. The interference with the normal rhythm of the respiration was markedly less than in cases where the mouth tube is used, the breathing going on in a more or less easy manner throughout. The extractions were difficult, and the operator (Mr. A. W. Steynor), though much handicapped by the indifferent light, performed his task in a highly satisfactory manner. The patient was extremely nervous at the start, but was well kept under the influence of the gas and made a good recovery afterwards.

The members adjourned to the Grand Hotel to partake of a luncheon by the kind invitation of Mr. A. E. Donagan, and an excursion was made by twenty-six gentlemen to Shifnal, where they were met by conveyances and driven round Boscobel and Tong, going over the old Hunting Lodge where King Charles was hidden, and the church at Tong, which contains some most interesting monumental and architectural work. This brought the meeting to a close.

83, *Edmund Street,* A. T. HILDER,
Birmingham. *Hon. Sec.*

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[1] These addresses will be published as original communications.

Southern Counties Branch.

THIS branch held their Annual Meeting at Brighton on Saturday, June 24, when there was a large attendance. This year the Brighton members gave a smoking concert on the evening before the meeting, which was very successful, between thirty and forty members attending. Amongst those present at the General Meeting were Messrs. J. C. Foran (President), John Wood (President-Elect), J. Smith-Turner, F. H. Van der Pant, H. J. Kluht (London); J. H. Reinhardt (Brixton); Morgan Hughes (Croydon); D. E. Caush, J. Dennant, T. H. Elliott, W. Harrison, J. H. Redman, A. Roberson, F. H. Muhlen-Kamp, F. E. Lambert, J. F. Rymer, C. B. Stoner, W. R. Wood and F. V. Richardson (Brighton); W. Barton, H. Turner (Eastbourne): B. A. Williams (Croydon); F. H. Ellwood (Redhill); G. O. Richards (Richmond); J. Ellis (Sandown); Frank Bell, W. T. Trollope, Leslie Maxwell, A. H. Tester (Tunbridge Wells); P. W. Greetham (Penge); A. H. Mountford (Kingston-on-Thames); E. A. Mansell (St. Leonards); F. J. Dumayne (Lee); A. L. Goadby (Reading); W. H. Pilcher (Godalming); H. O. Colyer (Ryde); A. R. Henry (Hastings); F. R. Flintan (Weybridge); H. Cahill, W. Floyd, C. Wray, and others.

The minutes of the last meeting having been taken as read, letters of regret for inability to attend the meeting were read from Alderman S. L. Rymer, Dr. Walker, G. H. Bowden, and many others.

The HON. TREASURER read his report, showing a balance in hand of £23.

The HON. SECRETARY read the Council's Report for 1898-99.

Mr. PRESIDENT AND GENTLEMEN,—Since our last Annual Meeting at Eastbourne we have held three general meetings, viz., at Bournemouth, in October; Hastings, in January, at which, this year, we had our demonstrations; and at Tunbridge Wells, in April; thus covering the whole of our somewhat scattered district.

Eleven new members have been elected against two resignations, this being the largest number that has joined in any one year since the Branch was formed, twelve years ago, bringing the total membership up to 113. As the Parent Association has not held its Annual Meeting in our district since 1889, the Branch invited them to meet at Brighton at Whitsuntide next year; we regret that our invitation was not accepted. The Council wish to call your attention to the circular issued by the General Medical Council, pointing out that :—

"Any Registered Medical Practitioner who knowingly and wilfully assists a person who is not registered as a Dentist in performing any operation in Dental Surgery, either by administering anæsthetics or otherwise, will be liable, on proof of the facts, to be dealt with by the General Medical Council as having been guilty of infamous conduct in a professional respect," a resolution that your Council have been agitating for, for some considerable time.

The Council nominate Mr. G. O. Richards as President-Elect for the ensuing year, and recommend that the Annual Meeting be held at Richmond, in June, and that ordinary meetings be held at Ryde (Isle of Wight), in October, 1899; at Brighton, in January, 1900; and at Folkestone, in April, 1900. In conclusion, the best thanks of the Council are tendered to those gentlemen who have so kindly assisted in making our meetings educationally and socially successful.

On the motion of Mr. CAUSH, seconded by Mr. GREETHAM, the reports were unanimously adopted and ordered to be entered in the minutes.

Mr. **FORAN**, the retiring President, read his valedictory address,[1] and then inducted Mr. Wood into the chair amidst applause. Mr. **HUGHES** moved a cordial vote of thanks to Mr. Foran for his services in the chair, which was seconded by Mr. **REDMAN**, and unanimously agreed to.

Mr. **JOHN WOOD** gave his inaugural address.[1]

Mr. **DENNANT** moved, and Mr. **HARRISON** seconded, a vote of thanks to Mr. Wood for his address.

The following officers for the year 1899-1900 were unanimously elected :—

President-Elect, G. O. Richards; Vice-Presidents, J. C. Foran and Alderman Rymer; Hon. Treasurer, J. H. Redman; Hon. Secretary, F. V. Richardson; Member of the Representative Board, J. H. Redman; Council, Messrs. Morgan Hughes, W. B. Bacon, A. L. Goadby, and Arthur King.

Mr. **WRAY** showed a case of "Conjunctivo Palatal Pemphigus," giving a full history of the case, and asking the opinion of members of the mouth part of the lesion.

Mr. W. **HARRISON** showed two vulcanite cases which he had made, using Jamieson's new gum material.

Mr. **CAUSH** showed his method of prolonging nitrous oxide anæsthesia by means of a mouth-gag.

Mr. **ROBERSON** showed an interesting case of Exostosis.

Mr. **RYMER** reported a case of chronic ulceration of the mouth, giving the treatment and result.

Mr. W. R. **WOOD** reported a case of necrosis of the tuberosity due to the eruption of the wisdom tooth; also a case of an impacted temporary molar.

After a hearty vote of thanks to the gentlemen who brought forward "Casual Communications," the members adjourned to luncheon, at the kind invitation of the President, Mr. John Wood.

A collection for the Benevolent Fund realised £5 5s., and promises of new annual subscriptions of £7 7s.

After luncheon Mr. Wood took the members to Rottingdean, going by the electric railway and by the electric sea-going car.

About sixty sat down to the Annual Dinner in the evening.

Western Counties Branch.

THE Annual Meeting of the Branch will be held at "The Reading Room," Mitchell Street, Weymouth, on Friday, July 21, 1899.

PROGRAMME OF THE PROCEEDINGS.

9.30 a.m.—Council Meeting at the Reading Room.
10.30 a.m.—General Meeting of members.
Report of Council for the year.
Honorary Treasurer's Report.
Election of Officers and Council.
General Business.
Valedictory address by Mr. W. A. Hunt.
Inaugural address by Mr. John Laws.

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[1] To be published as an original communication.

Papers.—"The Treatment of the Dental Pulp," by G. Thomson, L.D.S.Eng.; "A Curious Case of Hæmorrhage after Tooth Extraction," by W. H. Goodman, L.D.S.Eng.; "Prosthesis of the Inferior Maxilla," by T. Taylor Genge, L.D.S.I.; Celluloid Working and Apparatus," by W. A. Hunt, L.R.C.P., M.R.C.S.

2 p.m.—Luncheon at the Royal Hotel for members and friends, by invitation of the President-elect.

3.30 p.m.—Demonstrations at 2, Gloucester Row: "Solila Gold Filling," by S. G. Yates, L.D.S.I.; "Further Modifications in Shot Swaging Apparatus and Methods," by J. H. Gartrell; "An Interesting Exhibition of Vulcanisers of various Makes and Models." The Dental Manufacturing Company will also exhibit their latest chair, and other goods and novelties.

7.30.—Annual Dinner at the Royal Hotel (tickets 7s. 6d., exclusive of wine).

On Saturday an excursion has been arranged to Sherborne Castle and Sherborne Abbey, leaving Weymouth by 10.15 a.m. train to Yetminster; coach to Sherborne. Luncheon at the Digby Hotel, Sherborne. J. K. Wingfield Digby, Esq., M.P., has kindly thrown open the old Castle and grounds to the members. The return journey will be by coach to Yetminster and train thence to Weymouth, reaching there at 6.20 p.m. Fare for the whole day, including everything, 8s. 6d.

It is particularly requested that members who wish to attend the meeting, will inform the Hon. Secretary at once.

The Hon. Secretary requests that any changes of address be notified to him.

Headquarters will be the Royal Hotel. Other hotels are "Hotel Burdon," "The Gloucester," and "Staines' Temperance Hotel."

Members are advised to secure their rooms at once.

T. ARTHUR GOARD,
6, *Southernhay, Exeter.* *Hon. Sec.*

Reports of Societies and other Meetings.

General Medical Council.

Saturday, June 3, 1899.
Sir WILLIAM TURNER, President, in the Chair.

THE Council, having considered *in camera* a case[1] in which a person, registered as a dentist and practising as a chemist, had signed a certificate of death, and taking note of an undertaking not to offend again in a similar manner, resolved to proceed no further in the matter.

The Council next proceeded to consider a case[1] in which a dentist, registered in the Dentists' Register on July 22, 1891, under the 37th Section of the Dentists Act, without any diploma, was said to have had for five and a-half years, and to have now in his employment, at a salary, an unregistered and unqualified person, who from time to time had been permitted by his employer to perform the operations of extracting teeth for patients, and filling the teeth of patients with plastic fillings, in the absence of his employer. In one case this assistant was said to have performed a dental operation on a patient, under chloroform, in the absence of the dentist in whose employ he was, it being stated that the latter was ill at the time. The chloroform was not administered by the unqualified assistant. It was stated also that he had been permitted by the dentist complained of to see patients independently of him, and to do more than fell within the province of a mechanical assistant.

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[1] Ref. Minutes of General Medical Council, June 3, 1899.

It was pointed out, in defence, that the findings of fact of the Council's Committee were very much less than the actual accusation was when first brought before the Council. The accusation made was that the greater part of the defendant's work at a certain place was done by the assistant, owing to the defendant spending his time in idleness and sport, and that the assistant's attendance on patients had, on several occasions, involved operations under chloroform. The Committee had found that there was only one instance in which an operation was performed by the assistant, in the absence of his employer, which required the administering of an anæsthetic; and it was proved that the doctor who administered the anæsthetic did not know that the operator was an unqualified man, and it was only under circumstances of great urgency that he had allowed himself on that occasion to be induced to give chloroform in the absence of the defendant. It was also urged, in defence, that the accusation had been made out of malice, and that the person bringing the accusation had himself systematically employed an unqualified assistant not only to extract teeth, but to extract them regularly under chloroform, although at the outset he put his movement in this matter on the high ground of professional duty, as well as his obligation to the public.

The Council having deliberated on the case *in camera*, decided to adjourn its further consideration until the next session in November.

The PRESIDENT stated that the Council regarded such professional dealings as had been brought to their notice in connection with this case very seriously, and pointed out that they had expressed their views on the matter in a notice which was sent out some time ago. The Council would give the defendant until November to reconsider his position in regard to the employment of unqualified assistants, and when he appeared before them next November he would have to satisfy them on that matter.

Friday, June 9.

There were one or two items of dental business on the Agenda of the Council at its last sitting on Friday, June 9; but, as usual at the tail end of the session, they met with very summary treatment. Sir William Turner again presided, but nine or ten members of the Council were absentees. The first dental matter was the adjourned consideration of a recommendation from the Dental Committee as to adopting a new standing order for regulating procedure in dental penal cases. The new standing orders are as follows:—

PROPOSED NEW STANDING ORDERS IN REGARD TO PENAL ERASURES FROM THE DENTISTS' REGISTER,

remitted to the General Council by the Dental Committee on May 27, 1899 by the following resolution:—

Resolved:—that the Dental Committee recommend the adoption by the

General Council of the following standing order regulating Dental Penal Procedure:

(1) Where complaint is made to or information is received by the General Medical Council, alleging against a person registered in the Dentists' Register any matter which, if proved, would render such person liable to have his name erased from the Dentists' Register, the General Registrar shall make an abstract of the complaint and materials and evidence which have been received in relation to it, and shall submit such abstract, with the complaint, materials and evidence, to the President, or the Chairman for the time being of the Dental Committee.

(2) Where the complaint is made by one of the Medical Authorities, as defined in the Dentists Act, 1878, the President, or Chairman of the Dental Committee, as the case may be, shall forthwith appoint a time at which an inquiry is to be held by the Dental Committee into the matters alleged in the complaint.

(3) Where the complaint is made by a person other than one of the Medical Authorities, or in any other case in which facts have been alleged which, if proved, would render the person complained of liable to have his name erased from the Dentists' Register, the General Registrar may, under the directions of the President or Chairman of the Dental Committee, make such further inquiries of the complainant, or the person complained of, and obtain such further information and evidence as under such directions he shall think necessary and expedient for the purpose of placing the complaint, with the materials and evidence submitted in support thereof, and the answer or explanation of the person complained of, in a complete and convenient form before the Dental Committee.

(4) As soon as, in the opinion of the President or Chairman of the Dental Committee, the complaint, with the materials and evidence adduced in support thereof, and the answer or explanation of the person complained of, are in a complete and convenient form for consideration, the President may, if he thinks fit, appoint a time and place at which an inquiry into the facts of the complaint shall be held by the Dental Committee.

(5) The President or Chairman of the Dental Committee, as the case may be, may, in any case in which he shall consider that no sufficient grounds are shown rendering further inquiry necessary, instead of appointing a time at which an inquiry is to be held, report his opinion on the complaint to the Dental Committee at its next meeting, and the Dental Committee may, on such report and the materials placed before it, either direct that an inquiry be held on a future date, or resolve that no further inquiry is necessary, or take such other action as in the circumstances of the case the Dental Committee shall think expedient and proper.

(6) The Dental Committee and the President or Chairman may, for the purpose of considering cases referred to them, and the conduct of inquiries, require the attendance of the Solicitor to the Council, and of Counsel.

(7) The procedure on inquiries before the Dental Committee shall be conducted in accordance with the Rules set out in the Schedule of this Order.

(8) The Report of the Dental Committee upon an inquiry, held under this Order and the said rules, shall be put down for consideration by the General Medical Council in the Council's Programme of Business, and the General Registrar shall send notice in writing to the person complained of,

and to the complainant, informing them of the day and hour appointed by the Council for the consideration of the Report.

(9) Upon the Report of the Dental Committee coming on for consideration, the Report shall be read by the Registrar to the Council. The Council may thereupon determine whether or not the parties to the inquiry shall be heard before the Council upon the Report, or upon any question arising upon it, or the Council may, if it think fit, forthwith proceed to deal with the Report.

(10) The Council may, in any case in which it shall so think fit, refer back the Report of the Dental Committee, and the case upon which it was made, or any matter in relation thereto, to that Committee for further inquiry and report.

SCHEDULE.

RULES.

(1) Where an inquiry has been appointed to be held into the conduct of a person registered in the Dentists' Register (herein referred to by the expression "the accused person") a notice in writing shall be sent by the Solicitor addressed to the accused person. The notice shall specify generally the matters of complaint on which the inquiry will be held, and inform the accused person of the day, hour and place appointed for holding the inquiry. The notice shall be in the annexed Form (A), with such variations as circumstances shall require, and shall contain the information specified in such Form, and shall be accompanied by a print or copy of Sections 13 and 15 of the Dentists Act, 1878.

Information of the day, hour, and place appointed for holding the inquiry shall also be given by the Council's Solicitor to the complainant (if any), with an intimation that he may be represented thereat by Counsel or Solicitor.

(2) The notice of the inquiry addressed to the accused person shall be sent by the Council's Solicitor by a registered letter addressed to the registered address or the last known address of the accused person.

(3) The inquiry by the Dental Committee shall be opened in public, but, at any stage thereof, the Committee may (if they think fit) conduct the remainder or any part of the inquiry in private. Both parties may be represented by Solicitors, with or without Counsel.

(4) The Solicitor to the Council shall attend the inquiry and shall at the opening thereof read to the Committee the notice of the inquiry which has been addressed to the accused person, and (if the accused person is not present) shall satisfy the Committee that the notiice of the inquiry was duly sent to him by registered letter, as prescribed by these Rules.

(5) The complainant will then be invited by the Chairman to state his case and produce his evidence in support of it. At the conclusion of the complainant's evidence, his case will be closed.

(6) The accused person will then be invited by the Chairman to state his case, and produce his evidence in support of it. He may address the Committee either before or at the conclusion of his evidence, but only once.

(7) At the conclusion of the case of the accused person the complainant may (if the accused person has produced evidence) address the Committee in reply.

If the accused person has not produced evidence the complainant may not, without the special leave of the Committee, address the Committee in reply.

(8) Evidence may be taken by the Committee by oral statement, or by written deposition or statement. Where a witness is produced by any party he shall be first examined by the party producing him, and then cross-examined by the adverse party, and then re-examined by the party producing him. The Committee may, in any case, decline to admit the evidence of any deponent to a document who is not present for, or who declines to submit to, cross-examination.

(9) Members of the Committee may put such questions to the witnesses or parties as they may think desirable.

(10) On the conclusion of the case the Committee shall deliberate thereon in private, and prepare a report to the Council upon the facts as ascertained at the inquiry. The report shall be framed in the annexed Form B, with such variations as may be required.

(11) The Chairman shall inform the parties that due notice will be given to them of the time appointed by the Council for the consideration of the report.

APPENDIX.

Form A.

Notice of Inquiry.

Sir,—On behalf of the General Medical Council I am instructed to inform you that information has been laid before the Council alleging the following matters of complaint against you under the 13th Section of the Dentists Act, 1878:

That on the day of you were convicted of the following offence, namely, *or*

That, being a registered dentist, you [*set out particulars of the misconduct which is alleged*].

And I have to give you notice that on the day of at o'clock the Dental Committee of the Council will hold an inquiry at 299, Oxford Street, in the County of London, for the purpose of ascertaining the facts in relation to the said matters of complaint and reporting thereon to the General Medical Council, which on proof of such matters of complaint may proceed to direct the erasure of your name from the Dentists' Register.

You should attend the inquiry personally, and may be represented by a solicitor with or without counsel. If you do not attend, the Committee will proceed with the inquiry in your absence.

Any answer, or communication, or application, which you may desire to make relating to the said matters of complaint or your defence thereto, should be addressed to the General Registrar of the General Medical Council, 299, Oxford Street, W., or to me, without delay.

A copy of the 13th and 15th Sections of the Dentists Act, 1878, is enclosed herewith for your information.

(Signed)

Solicitor of the General Medical Council.

Form B.

Report of the Case of A B.

The complaint against having been referred to the Dental Committee to ascertain the facts, the Dental Committee beg to report as follows:—

On the day of the following parties, with their witnesses, attended before the Committee, and were duly heard, namely:—

The Committee find that the following facts were established by the evidence:—

[Here set out the facts.]

The evidence before the Committee consisted of the following:--

(1) The oral evidence of the following persons:—

[Set out the names of witnesses.]

(2) The following depositions and statements:—

[Set out dates and descriptions of the documents received in evidence.]

(Signed)

Chairman.

Dr. MACALISTER moved: "That the proposed standing orders for regulating procedure in dental penal cases be adopted with the exception of Section 11, and that the Executive Committee be requested to reconsider this Section and report thereon at the November Session of the Council." He said that by next November the Executive Committee would be able to revise Section 11, before it came into operation.

Mr. TOMES seconded the motion, and for the information of the Council explained that the Rules were drafted before some little difficulties were experienced in hearing a dental case. It would be convenient that the rest of the Rules should be passed, because the Dental Committee very likely might have to hear penal cases in the intervals of the Session.

The Resolution was agreed to.

The next business was to receive a Report from the Dental Education and Examination Committee on an Act to amend the Law relating to Dentists, passed in the Colony of Victoria.

On the motion of Dr. MACALISTER, the Report was received and entered as an appendix to the minutes:—

The following Report from the Executive Committee on dental business transacted by it since the last Session of the Council was, on the motion of Dr. MACALISTER, seconded by Mr. TOMES, received and entered on the minutes:—

The Executive Committee report that the following matters of dental business have been considered by them since the last session of the Council:—

(*a*) They approved of the restoration of the names of the undermentioned persons to the Dentists' Register, from which they had been erased in conformity with the provisions of Section 12 of the Dentists Act (1878):—Boulger, Francis; Julian, William.

(*b*) They received from the Treasurers statements, duly audited, of the receipts and expenditure of the Dental Fund of the General Medical Council for the year ending December 31, 1898, and directed that a summary thereof should be published in the Medical and Dentists' Registers for 1899, and that it should be laid before both Houses of Parliament.

(*c*) They considered the form of the Supplementary Notice to be issued to dentists in regard to the subject of the administration of anæsthetics, and approved of one which had been drafted by Mr. Muir Mackenzie, as follows:—

"NOTICE.

"Any registered medical practitioner who knowingly and wilfully assists a person who is not registered as a dentist in performing any operation in dental surgery, either by administering anæsthetics or otherwise, will be liable, on proof of the facts, to be dealt with by the General Medical Council as having been guilty of infamous conduct in a professional respect."

(*d*) They accepted the resignation of Sir Henry Pitman, the sole surviving trustee to the Dental Fund, thanked him for his services, and appointed in his place Dr. Church and Mr. Tomes, trustees, who kindly consented to accept the appointment.

(*e*) They received a letter from the Royal College of Surgeons of England in regard to the course of study and examination for licences in dental surgery.

(*f*) They received a communication from the Dental Board of Victoria in regard to the registration of Mr. E. H. C. Bailey in the Colonial List of the Dentists' Register, and resolved :—

"That Mr. E. H. C. Bailey and Mr. F. W. Bailey be asked to produce the certificates required by the Regulations under which they commenced their studies, in proof of their having fulfilled the Regulations under which they commenced."

(*g*) They considered and rejected an application for registration under Section 37 of the Dentists Act (1878).

(*h*) They received from the Colonial Office a copy of an Act of the Legislature of Victoria to amend the law relating to dentists, and resolved that it be referred to the Dental Education and Examination Committee.

The Dental Committee were re-appointed and the Session terminated.

Reviews and Notices of Books.

METHODS OF FILLING TEETH. An exposition of practical methods which shall enable the student and practitioner of dentistry successfully to prepare and fill all cavities in human teeth. By RODRIGUES OTTOLENGUI, M.D.S. Second edition. With two hundred and seventy-three illustrations. Philadelphia: The S. S. White Manufacturing Co. ; London: Claudius Ash and Sons, Ltd.

HERE we have a book entirely devoted to the description of different methods of filling teeth. The sub-title appears somewhat ambitious, but doubtless the student or practitioner who would read the book carefully and try for himself all the methods advocated, would find himself in possession of considerable knowledge of the subject; for it is scarcely too much to say that the author has dealt pretty extensively with every conceivable class of cavity. No other branch of dentistry is touched upon; the shaping of cavities, the application of the rubber dam and of ligatures, the uses of various filling materials, the relative values of contour, and such details directly concerned in tooth-restoration being deemed, and rightly so, worthy of a volume to themselves. The inventive and experienced practitioner, as well as the student, will find many useful hints in these pages, and the letterpress is rendered more clear by the numerous illustrations accompanying it.

Annotations.

At the Annual Meeting of the Scottish Branch of the British Dental Association, held recently in Inverness, it was decided that some formal recognition should be accorded to the many services rendered to the dental profession by Mr. W. Bowman MacLeod, Dean of the Edinburgh Dental Hospital and School, Past-President of the British Dental Association, of the Odontological Society of Great Britain, and of the Odonto-Chirurgical Society of Scotland.

It was the unanimous feeling that Mr. MacLeod should be presented with his portrait, and the meeting thereupon resolved itself into a Committee, with power to add to its numbers. The Committee are as follows:—Messrs. Walter Campbell (Dundee), President; J. Leslie Fraser (Inverness), Vice-President; Malcolm MacGregor and J. S. Amoore (Edinburgh), Hon. Treasurers; C. Rees Price (Glasgow) and D. Baillie Wilson (Edinburgh), Hon. Secretaries.

The Hon. Secretary of the Scottish Branch has sent us the following cutting from the *Scotsman* of June 9:—

THE DEATH OF AN EDINBURGH YOUNG LADY FROM CHLOROFORM.

Mr. James H. Ross, the father of the young lady who four weeks ago died in the Edinburgh Dental Hospital while under chloroform, has received the following letter from Sir Henry Littlejohn:—

"Public Health Office, Police Chambers,
"Edinburgh, May 24, 1899.

"DEAR SIR,—The Crown Authorities have determined to initiate no proceedings as to the death of your daughter. They cannot attribute the death to any want of skill or attention on the part of the operators, nor does the result of the *post-mortem* examination throw any definite light on the exact cause of death, which appears to have been due to a special intolerance on the part of your daughter for this particular anæsthetic—chloroform. I need hardly add that, personally, I deeply sympathise with you in your great distress.—Yours truly, (signed) HENRY D. LITTLEJOHN, M.D."

Members may be glad to know that copies of the photograph taken of the members and friends of the Association at the Lower Arboretum, Ipswich, on May 23, may be obtained from M. Louis Duprès, 24, Butter Market, Ipswich.

A letter from Johannesburg (S. A. R.), which we publish on another page, shows us that the dentists of the Transvaal, as well as the Uitlanders generally, have their grievance, and are seeking for its remedy by petitioning the Government of that much-disturbed little State. We have not space enough to publish the petition, but its object appears to be to obtain for duly qualified dentists recognition as such, in contradistinction to those dentists who, although not qualified, have obtained a licence to practise the art of dentistry in the capacity of a "tooth-drawer" but not as a "dental surgeon."

The following letter, which we take from the Johannesburg *Star*, throws some light upon the difference of terms as expressed in the Dutch language:—

THE DENTIST'S LICENCE.

To the Editor of the "Star."

SIR,—Without any preamble in reference to the fresh tax imposed upon professional men, allow me respectfully to suggest to all qualified registered dentists that they take out the "Heelkundige" (surgeon) licence.

A surgeon ("heelkundige") is "one who treats injuries, deformities, or disorders of the living body by mechanical operations." A dentist or dental surgeon ("tandheelkundige"), says the same authority, is "one who practises dental surgery, filling, cleansing, adjusting or extracting teeth, &c.; providing artificial dentures and attending to abscesses and other diseases of the mouth and teeth."

Every dentist proper is a surgeon. This his curriculum proves and his daily practice demonstrates. He is a "Tandheelkundige" or dental surgeon.

The existing law permits any man to take out a licence as "tandtrekker" (toothdrawer), an apothecary, to wit; but beyond this, being unregistered, he has no right whatever. If he meddles with disorders of the mouth or teeth, or makes and fits artificial dentures, he is amenable to the law. A dentist's business is to preserve the teeth, if possible, but he may, if necessary, extract them. A dentist, therefore, is a tooth-drawer, but a tooth-drawer ("tandtrekker") is not a dentist.

A "geneeskunidge," or general practitioner's licence covers every branch of medicine and surgery.—I am, &c., VERB. SAT. SAP.

We trust that our brother practitioners in the S. A. R. may attain their object, no doubt a just and a desirable one, but concessions, though perhaps not as "heavy to hold," seem to be certainly as "hard to get" as the precious metal which is the chief product of that land.

MR. C. J. HINCHLIFF, L.D.S.Eng., whose name appears in our last month's appointment list, asks us to correct his initials, which were given as C. F. We also apologise to Mr. T. L. Nash, of Inverness, for accidentally omitting his name from the list of members attending the meeting at Ipswich.

MR. BEADNELL GILL asks us to correct a remark in connection with Mr. Booth Pearsall's paper on "Technical Training in American Dental Schools," published in our last number. On p. 347, line 7, the expression "good mechanical dentist" should have been printed "good *practical* dentist." The two expressions do not, unfortunately, always mean quite the same thing. In connection with the same discussion, Mr. Turner asks us to say that his quotation from Shakespeare," Comparisons are odious," should read "odorous."

Miscellanea.

Royal College of Surgeons of England.

The following gentlemen, having passed the necessary examinations, have been admitted Licentiates in Dental Surgery, viz., Messrs. Edward Faulkner Ackery, Charing Cross and the Dental Hospital of London; Henry David Apperly, Middlesex and the Dental Hospital of London; John Robert Slade Ash, Guy's Hospital Dental Department and School; Liston Wheatley Bennett, Middlesex and the National Dental Hospital; Alfred Harold Bowkley, University College, Dental Hospital and Royal Infirmary, Liverpool; Robert Victor Britten, Edward Cardwell, Harry Whitmore Cutts, Charing Cross and Dental Hospital of London; Percy Ernest Chandler, Guy's Hospital Dental Department and School; Samuel Sydney Doran, University College, Dental Hospital and Royal Infirmary, Liverpool; Frederick English, Mason College, Queen's, General and the Dental Hospital, Birmingham; Harold Arthur Thomas Fairbank, M.R.C.S.Eng., L.R.C.P.Lond., Charing Cross and Dental Hospital of London; Emmanuel Bower, Marshall Frost and Archibald James Gwatkin, Guy's Hospital Dental Department and School; John Walton Gibbons, Owens College, Royal Infirmary and Victoria Dental Hospital, Manchester; Edward Joseph Fabian Gillemand, Charing Cross and Dental Hospital of London; Robert William Griffin and Cyril Henry Howkins, Mason College, Queen's, General and Dental Hospital, Birmingham; Alfred David Hopkins, Ernest Robert Howlett, and Arthur Hughes, Guy's Hospital Dental Department and School; Harold Samuel Huggins and John Daniel Dawson Humby, Middlesex and the National Dental Hospital; Alfred de Betham Jepson, Charing Cross and the Dental Hospital of London; Sydney James Kaye, Middlesex and the Dental Hospital of London; John Mahoney, Owens College, Royal Infirmary and Victoria Dental Hospital, Manchester; De la Hay Moores, University College, Royal Infirmary and Dental Hospital, Liverpool; John Gerdes McAlpin, Herbert William Morris, Major Percival Nathan, Stephen Holloway Olver and Percival Henry Hayes Palmer, Guy's Hospital Dental Department and School; Frank Parlett, University College, Royal Infirmary and General Hospital, Dental Department, Bristol; William de Courcy Prideaux and Herbert Quinton, Charing Cross and the Dental Hospital of London; Thomas Edward Regan, Owens College, Royal Infirmary and Victoria Dental Hospital, Manchester; Alfred Ernest Rowlett and Thomas Francis Ryan, Guy's Hospital Dental Department and School; Richard John Russell, University College, Royal Infirmary and Dental Hospital, Liverpool; Frank Lyon Shelton and Ernest Shrubsole, Charing Cross and the Dental Hospital of London; Sydney Calvin Smith, M.R.C.S. Eng., L.R.C.P.Lond., L.S.A.Lond., Middlesex and the Dental Hospital of London; Lionel Taylor, Owens College, Royal Infirmary and Victoria Dental Hospital, Manchester; Edgar Preston Uttley, Frank Warlow, Eustace Beaumont Lathbury White, John Albert Whittington and Charles Frederick Witcomb, Guy's Hospital Dental Department and School; Thomas Herbert

Vaughan and Herbert Gill Williams, Charing Cross and the Dental Hospital of London. Twenty-eight gentlemen were referred back to their professional studies for six months and one for one year.

Charing Cross Hospital Medical School.

In the absence of Lord James of Hereford, Sir Robert Finlay, M.P., the Solicitor General, distributed the prizes and certificates awarded during the summer session, 1898, and the winter session, 1898-99, to the students at the above school on Wednesday, the 5th inst.

In his report for 1898-99 the Dean, Dr. Montague Murray, said:—

"Any record of the past year's work, however brief, must begin with a reference to the delivery last October, by Professor Virchow, of Berlin, of the second Huxley Lecture. The occasion was a unique one in the annals of this School, and that Lord Lister and Professor Virchow should have combined in helping us to do honour to the memory of one of the most renowned of our old students, is a feature upon which we have a right to congratulate ourselves. I do not think that any one who was present on that memorable occasion will ever forget the enthusiasm which was felt and manifested by all. The Huxley Lecture is a biennial one, and the next—that is the third, will be delivered in October, 1900. Our next winter Session (October, 1899) will be opened by an Introductory Lecture from one of the most distinguished of our own lecturers, Dr. Mitchell Bruce. Our School record this year has been one of steady and continuous progress. In 1897 the entries from all sources were seventy-one. This year they have been eighty-two, and when our new hospital buildings, which we hope will have begun to show themselves by the time we next meet here, are completed, I have no doubt that the increased clinical attractions which we shall be able to offer will result in a still larger number of entries. It is with almost equal pleasure that we watch the rapid progress of the New Dental Hospital of London, in which we are also much interested, for so many of the students of that hospital and school receive part of their education within these walls. Our successes at the various examinations have been all that we could wish. The changes in our teaching staff have not been numerous.

Foremost and saddest among them is the loss we have sustained by the death of Dr. Arkle. In 1892 he was appointed Pathologist and Curator of the Museum, and soon after Lecturer on Bacteriology. Later on, when he resigned his first appointment, he became Lecturer on Practical Medicine, Assistant-Physician to the Hospital and Vice-Dean to the Medical School. Dr. Arkle came into contact with a very large number of our students, and his geniality and love of sport, combined with his high professional attainments and teaching ability, gained for him an altogether unusual degree of popularity among both students and staff. Dr. Galloway succeeds Dr. Arkle as Assistant-

Physician to the Hospital and Vice-Dean to the Medical School. Dr. Hunter has been appointed Lecturer on Practical Medicine and Physician to the Electrical Department, and Dr. Bosanquet has become Medical Tutor. Dr. Eden has been appointed Assistant-Obstetric Physician and Tutor in Obstetrics and Gynæcology. Mr. Gibbs' labours and successes as Senior Demonstrator of Anatomy have been recognised by the additional title of Lecturer on Practical Anatomy. The Council of the Hospital have, with that wisdom and foresight which characterises all their actions, instituted the office of Bacteriologist to the Hospital; and to this appointment, as well as to that of Lecturer on Bacteriology to the Medical School, Dr. Eyre was unanimously chosen. At the Hospital, Mr. Montgomery has been appointed Resident Medical Officer, and Mr. Daniel Surgical Registrar. It is a source of gratification to us that in this way three of our old students—Dr. Bosanquet, Mr. Montgomery and Mr. Daniel —have received important appointments during the year. This ends my brief summary of the year's work. In offering an official welcome to those who are gracing our proceedings with their presence to-day, may I add that we are always grateful for any further endowments that will enable our Hospital and School to extend and perfect its already extensive labours."

In congratulating the prize-winners on the success which had attended their efforts, the Solicitor-General referred to the presence of Professor Virchow and Lord Lister at the Huxley Lecture, instituted to commemorate the connection of the late Professor Huxley with this medical school.

There was a time, not long ago, when operations were attended by blood poisoning, which often resulted in the death of the patient. To Lord Lister's antiseptic treatment we owe the extirpation of that scourge. Every student of medicine might well feel proud of the fact that he had chosen, without exception, the most unselfish profession in the world. There was no class of men who did their work more nobly and conscientiously than the medical men and surgeons of Europe. He impressed upon the students the importance, when they started practice, of keeping themselves in touch not only with the improvements of science, but with the great masterpieces of literature in which some phase or other of human nature was always to be found.

In conclusion he could only hope that each student who emerged from that school would endeavour to prove himself worthy of the great profession which he had adopted.

A vote of thanks to Sir R. Finlay, proposed by Sir Joseph Fayrer, concluded the proceedings.

Benevolent Fund.

The following contributions have been received during June:—

New Subscriptions.

Mr. T. Coysh, 419, Chiswick High Road, Gunnersbury ...	£0 10 6
Mrs. T. Coysh, 419, Chiswick High Road, Gunnersbury...	0 10 6

Donations and Collections.

Central Counties Branch Collection (per A. T. Hilder) ..	2 18 0
H. J. Kluht, 156, Westbourne grove, W.	2 2 0
C. F. Rilot, 22, Wimpole Street, W.	1 1 0
Walter Harrison, 6, Brunswick Place, Hove	0 10 6

Westminster Hospital Medical School.

It may interest some of our readers to know that important alterations have been made in the time table of lectures at this School, with the view of suiting the convenience of dental students taking part of their course at the dental hospitals.

Dental Hospital of London.

The Annual Conversazione and distribution of prizes in connection with this Hospital will take place at the Royal Institute Galleries on Wednesday, July 19, at 8.30 p.m. The prizes will be distributed by Sir Richard Douglas Powell, Bart., M.D., F.R.C.P.

Appointments.

GUY'S HOSPITAL.—*House Surgeons* (6 months): Messrs. P. H. Hayes Palmer, L.D.S.Eng.; Alfred E. Rowlett, L.D.S.Eng.; S. H. Olver, L.D.S.Eng.; *Assistant House Surgeons* (3 months): Messrs. F. W. Garman and R. B. Recordon.

C. E. WALLIS, M.R.C.S., L.R.C.P., L.D.S.Eng., to be Assistant Dental Surgeon to King's College Hospital.

NOTE.—ANONYMOUS Letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 26, Wimpole Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

Subscriptions to the Benevolent Fund to the Treasurer, A. J. Woodhouse, Esq., 1, Hanover Square, W.

All contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 26, Wimpole Street, W.

Journal of the
British Dental Association

No. 8. AUGUST 15, 1899. VOL. XX.

Original Communications.

Coned Inlays.[1]

By FRANK BELL, L.D.S.I.

MR. PRESIDENT AND GENTLEMEN,—In selecting porcelain inlays as a subject for my paper, I am conscious of having chosen a theme which at first sight may strike many of you as having been talked about, and written upon, and demonstrated sufficiently, and that it is one which has received already as much attention as it deserves. But, as my enquiries have resulted in the conviction that some at least of my professional brethren have not yet made practical acquaintance with the particular form of inlay which stands as a title to my paper, I have ventured to lay before you some of my own experiences with Jeffery's coned inlays, together with some slight modifications of his porcelain rods, and also of the burs for inserting them, which in my hands have led to more or less satisfactory results.

I will state at once my belief that before long Jeffery's inlays will be generally used, and that we and our patients will recognise his method as one for which we owe him our thanks and gratitude, for by this means is overcome, in a truly charming and artistic manner, the problem of how to treat that most unsightly type of cavity occurring in the superior incisors, where the labial wall has actually succumbed or has been permanently stained by caries, and where a gold filling would be glaringly prominent and would seem to suggest an undue passion for the yellow metal, and yet any other material is voted unsuitable on account of its still greater ugliness or its want of durability.

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[1] Read before the Southern Counties Branch, April 22, 1899.

To quote Mr. Jeffery, his method "consists in preparing together two contiguous cavities and shaping them with a long tapered bur, and then inserting a double inlay of identical taper, thus practically filling two teeth at once."

There is scarcely any limit to the size of the cavities which can be satisfactorily inlaid, and the only things necessary, in addition to the Corundum and other wheels which we all possess, are the special bur or burs, the tapered rod, and a diamond disc.

The first case I treated in this way taught me much, and with your permission I will describe it. There were large approximal cavities in the left superior central and lateral. The other teeth were very white and regular, so these lesions were exceedingly disfiguring. I therefore determined to insert Jeffery's inlays. I followed closely the instructions given for shaping the cavities with the long coned bur, and then with small cavity burs I obtained a certain amount of undercut.

I think my feelings here must have somewhat resembled those of the general of whom we read, who, when he landed on a hostile shore, burned his boats; for when I saw how terribly large was the opening I was making between the teeth, I realised that there was no going back, and that if I did not succeed, I was making what was already bad, hopelessly worse.

I then marked the split porcelain rod I had selected, and which I found fitted the opening made, with a sharp pencil, cut off the end protruding into the mouth, and roughly shaped it to the lingual contour of the teeth. The next process was to cut retaining dovetails in the inlays. I was charmed by the ease and accuracy with which the diamond disc did its work. Now came a critical juncture. The rod was to be partially cut through, so that when the inlay was set the surplus portion could be broken off. If I cut too deeply, the rod would not stand the pressure necessary to send it through the cement which was to be smeared over it, and also in the cavity; and if the cuts were not deep enough, I should fracture the inlays when the time came to sever them from the parent rod. The event proved that I was correct in my prognosis as to the fracturing, for the break took place not where I intended, but where I had made one of the dovetails too close to the labial surface of the lateral inlay. It was, however, not irrevocably spoilt, and with judicious use of the diamond discs and smooth stones, the result when finished was not altogether unsatisfactory, while the appearance of the central gave me encouragement to go on with the method.

Since then it has become my custom not to cut off the superflous piece till after the setting, and this is not difficult to accomplish with a thin diamond disc of large diameter, working upward towards the gum.

It was not long after my first case that I found, at any rate for small cavities, the split rod had some disadvantages.

The separating medium forms a considerable proportion of the rod, and, in use, if the inlay is not set perfectly true, the misfit has to be adjusted at the cost of tooth substance. Then if the cavities are small and the fine end only can be used, by the time the retaining undercuts are made, the inlay is so delicate and fragile that there is a probability of crushing it when pressing it home. During the interval which elapses between drilling and excavating the cavities and the preparation of the rod, the teeth may come together slightly, and some gentle force is needed to get the inlay in place.

On one occasion the dividing medium softened and came away after the setting, and when my patient returned to have the operation finished the teeth had approximated so closely that contouring and polishing were rendered very difficult. I therefore had some solid rods prepared by the D. M. Co., and I found that owing to their greater strength and substance these difficulties were overcome, and with the diamond disc there is very little trouble in dividing the mineral.

A further advantage with the solid rod is the possibility of inserting a *single* inlay,—*i.e.*, an inlay in *one* tooth. This, for reasons difficult to explain in a paper, but which I soon realised in practical use, I found almost impossible with the split rod.

My next trouble was with the cutting bur. The head of the original tool is two inches long, and the shaft is a quarter of an inch longer than is actually necessary, and being clutched in the handpiece of the engine only at the extreme end, it soon developed a wobble, which resulted in a slightly elliptical cavity instead of a true circle. So I had two instruments made which divided the head between them and shortened the shaft by a quarter of an inch. The shaft also was enlarged just below the head, so as to bear slightly and be steadied by the nose of the handpiece.

In closing my remarks, I would urge those who intend trying the method: at first to allow at least one and a-half or two hours at the *end* of a morning or afternoon's work; not to undertake it at all for a fidgety, restless patient, or for one who is unable to come next day to have it finished off; always to have a sufficient division between the teeth to be operated upon—such a division as you would have for a gold filling. Use the rubber dam for the setting. In selecting the colour, choose a shade somewhat lighter than the teeth to be inlaid.

I do not proclaim that these inlays can be inserted in a fashion so true that it is impossible to see which is inlay and which is tooth, without a trace of the fixing cement being visible; but I do claim that it is possible to obtain highly satisfactory results by these very simple means, and that the method is a big step towards the goal at which we are all aiming—perfection.

Presidential Address.[1]

By J. J. ANDREW, L.D.S.Eng.

Mr. President and Gentlemen,—I thank you for the honour you have done me in placing me here to-day as chairman of the Microscopical Section of the British Dental Association. When I think of the pleasant meeting at Bath last year, and the splendid address we had from Mr. Bennett, I feel how little worthy I am to stand here to-day. Addresses are not the least in my line; I am a worker. I hope, therefore, you will give me your kind indulgence for a few minutes.

We are now entering on the seventh year of the Microscopical Section's work, and I think there has been done in that time some good work which, but for our Section, might have been left undone.

Vast strides have been made in microscopic methods and work during the last few years. In our branch of the healing art many points, histological and pathological, have been satisfactorily cleared up. The names of Tomes, Mummery, Rose, Williams, Underwood and Miller may be mentioned as workers who are always giving us something fresh. There are a host of minor workers who are also doing good work, and from which occasionally something good turns up. The field is wide, and there is room for us all.

Something in the way of encouragement and help might be a good thing for some of the younger men who have the power and time to use it; this is a subject which Mr. F. Bennett has broached. Unfortunately for the busy man who does from five to ten hours' work in the day at his ordinary duties, much scientific work is an impossibility. Our patients demand the best we can give them, and this should be theirs if we want to make a place for ourselves and not get left in the struggle. The man who fears to give a little pain when necessary makes a great mistake in shirking this necessity. Inferior work, half excavated cavities, we all know, may do for a time, but are bound to fail sooner or later—generally sooner. Our patients find this out for themselves, and by and by they learn to trust the man whose work lasts, even if he is more painful in his ministration.

Now that we are satisfied that caries is caused and carried on by micro-organisms, their thorough removal is recognised as necessary. The use of antiseptics is more than ever understood and required to battle with the swarms of hostile organisms with which we have to contend.

It is hard for many of us to realise and believe that caries is caused and carried on by these little organisms, but when they are observed and studied, and the many and varied powers they possess noted, the fact is forced on one that they are the likely cause.

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[1] Delivered before the Microscopical Section at the Annual General Meeting, 1899.

We all must have our hobbies, and one of mine is micro-photography. This is a most fascinating study, and one which, unfortunately, takes up a good deal of time, and one for which a little knowledge of microscopy and photography is required. When working with high powers one has also to wait till the house is quiet and most of the inmates are asleep, as the motion of going carelessly about in the vicinity of the work which is being done causes enough vibration to spoil the exposure. For example, one evening I was trying to photograph some cocci which should have come out as round dots. I had a friend in the room sitting at the other side of the apparatus; during the exposure he talked a little, and the consequence was that instead of having dots I got rods on the plate, the vibrations of his voice having set the apparatus going. This kind of work is not the best thing for a man who is confined to the house all day, and therefore it should only be indulged in occasionally.

I now wish to bring before you a few well known facts and some elementary remarks in regard to bacteriology. We, as dentists, cannot fail to recognise the fact that most of the ravages which we have to deal with are caused by bacterial influences of some sort or another, and the more we think about it, or look into the subject, the more we are forced to recognise this fact. I am not going to touch on the special subject of dental bacteriology, as that is going to be dealt with in our Section by Mr. Leon Williams and Mr. Goadby, both of whom, I am sure, will give us something good to digest and think about; in fact, I do not as yet know anything about the special organisms which cause decay and trouble in our own branch of the healing profession.

I think it well that, before beginning special work of that kind, one should have a knowledge of general bacteriology, so I hope some of you who may be well up in it will pardon me if I make it the subject of a very elementary lecture. Those who have not yet thought much about it may be led to do so, and to begin to apply themselves to some work which may be good for themselves and also for others. There is a great charm and fascination about the study of these little organisms when once we get started.

"Bacterium" is the name applied to the members of a group of elementary one-celled organisms nearly related to the fungi—if not indeed true fungi; they are also called microbes.

They are to be studied in regard to their main characters—(1) Morphology; (2) Chemistry; (3) Pathogenic power. The facts relating to these three points constitute the science of bacteriology.

A few general points in regard to each may be considered; some of the morphological aspects can be elucidated by the micro-photographs. They are divided into three principal divisions :—

Cocci, or round organisms.

Bacilli, rod-shaped organisms.

Spirilla, spiral organisms.

The cocci sub-divide into staphylococci, growing like bunches of grapes; streptococci, growing in chains; diplococci, growing in pairs; tetrads, growing in fours; sarcinæ, growing in bundles or bales.

Bacilli, all straight rod organisms; long and short, square or rounded ends, and at times club-shaped. Many bacteria have a distinct capsule, and this may be demonstrated at some points in their growth.

Leptothrix are long, undulating rods composed of a number of bacilli joined together by their ends.

Streptothrix are long branching chains of cocci organisms.

Involution forms are found in pure cultures when the nutrient medium is not favourable to their proper development, and in old cultures which have degenerated; and in these we find the forms in a pure culture have not all the same appearance, but have slight variations.

There are a host of other terms used in classification of the bacteria, but those I have given fairly well cover the ground. Cocci divide in the middle and form two; this simple division goes on indefinitely. We thus get single cocci, and double cocci, or diplococci, in this case depending on the stages of growth. They are often in a capsule or envelope, which contains either one or two organisms. When they grow and divide in different directions, and form very characteristic grape-like clusters, they are called "staphylococci."

When dividing, but always growing in one plane, and forming chains of varying length which are usually enclosed in a long continuous sheath or capsule, they are called "streptococci."

When dividing regularly in three directions, but instead of separating, remain together in masses like bales of cotton (or balls of wool in a bag), each individual or group having its own capsule, they are called "sarcinæ."

Bacilli divide by a transverse fission across their line of growth, which is in the long direction, and when in this state may appear at times as long single bacilli.

Micrococci or round forms are about $\frac{1}{25000}$ inch in diameter, seldom more. Bacilli or rod forms are about $\frac{1}{25000}$ inch in diameter, and $\frac{1}{12000}$ inch to $\frac{1}{6000}$ or more in length. Of course we find bacteria which vary from this very considerably.

In an ideal condition, when everything is favourable, the growth is something marvellous, and were it allowed to proceed unchecked man would have a very small chance on the earth's surface—in fact, would be wiped out in a very short time. Some idea of this enormous growth may be conveyed when it is calculated that a single germ by fission would produce in one hour two of its kind, in the second hour these would be four, and in three days the numbers could scarcely be imagined—4,772 billions; or, if reduced to weight, not less than 7,500 tons. Fortunately this condition is never, nor could ever be found, the development being hindered by so many things, and the rate of death from want of proper food and other causes very great. There is of course a great difference in the rate of development and multiplication of different bacteria, some growing very rapidly, as I have just said, while others grow very slowly.

There is a condition in which some of the bacteria are found, and in which state they may remain for years and no change take place, that is the condition of spores—or resting spores as they are termed. These may float about or be carried in many ways, and when they meet with favourable conditions they may settle down and begin to develop, and go through their old life cycle again.

When a bacillus is about to form a spore, certain changes take place. First it loses its homogeneous appearance, some granular points appear, these finally coalesce, the rest of the cell remaining clear. The spore now appears as an oval glistening body, easily distinguished from the rest of the cell, located either in the centre or at one end of the mother cell, which now bursts and liberates the enclosed spore. Usually but one spore is produced. When the spore is again to develop into a bacillus, it gradually loses its appearance of refraction, and becomes more like the ordinary bacillus in appearance, the membrane ruptures, and out of this grows the new bacillus.

In the spore state it is difficult to destroy the vitality of the organism, hence the care which must be taken in preparing media for the cultivation of bacteria, that one may be sure there are no living spores—or eggs, if we like to call them so—of some other species than that which we want to grow, left in the prepared media.

Many bacteria (all the cocci) have no movement of themselves, but depend on the streams of motion in the tissues to be carried here and there, and thus find the best positions for their future development. Others again are provided with cilia or flagella, and in the living state are seen moving rapidly about under the microscope in suitable fluid. The flagella may either be few or many; sometimes one at either end, sometimes a pair, or it may be that they are all at one end, or distributed around the organism.

Another feature which we may regard as part of the morphology of bacteria is the appearance of the colonies they form. They are depressed or raised, round or irregular. The margins are well defined or filamentous, &c., &c. They are also in many instances characterised by the production of colour, and we find many varieties of colour produced.

There are a large number of media used in their cultivation, such as bouillon or beef broth, milk media, egg media, nutrient gelatine media, agar-agar media, blood serum media, potato media, peptone media, and others.

Bouillon or beef broth is a slightly alkaline solution made from lean beef with some peptone and salt, carefully prepared, clarified, and sterilised on several separate occasions. This broth should be of a rich yellow colour.

Potato media, generally used in the form of slices, carefully sterilised in the steam steriliser on several separate occasions. These are inoculated by the aid of a platinum wire with the material desired to grow.

Potato water is a potato broth with glycerine, sterilised as before.

Nutrient gelatine is made of gelatine, peptone and salt, made alkaline with carbonate of soda, sterilised and clarified, to which is added some beef broth.

To the above media may be added any kind of chemical salt, that the effect of it may be observed on the organisms we may be cultivating.

There are two temperatures generally used; that of the room usually with the gelatine media, and that of the body for pathogenic organisms with agar-agar media.

In order to study any form in detail it must be obtained in pure cultivation, and to do this an ingenious method was devised by Koch. He noticed that moulds settling on the cut surface of a cooked potato grew separately from each other, and he applied to the isolation of all bacteria the suggestion of this observation. By taking clear gelatine and melting it at 24° C., diffusing through the melted gelatine the various bacteria he wished to isolate, and pouring out in a flat plate the gelatine, and allowing it to cool, he obtained the bacteria separated from each other and in a medium in which they could grow.

Each separated bacterium produces a visible colony of its own kind in a few days, and from such colonies the growth is transferred by a needle to separate tubes to grow in, and studied in isolation. The gelatine is made nutrient by adding to it clear beef broth.

This we now have to determine as to species in various ways, such as by its behaviour in different media and of medicated media, its power of liquefying gelatine, its power of producing gas, its power of producing colour, and many other points in its life history. As far as the general appearance of bacteria goes—that is under the microscope—there are very few forms that are so specific in shape or size, or that one could be sure of the species without the above tests. Then there are the different reactions produced by staining, and the way in which the stains may be taken and held by the organism.

We have to consider also the chemical aspect of the life history of bacteria. A large number of the differential characters depend on this. The action of bacteria is described as fermentation. They induce inorganic bodies, such as albumens, changes which are due to the action of ferments. One well-known fermentative effect is the conversion of sugars into acid. Milk sugar is converted into lactic acid. Many bacteria convert grape sugar into acid. They are able to ferment albumens; examples of this action are seen in the clotting of milk. The *bacillus coli communis* is able to clot milk; the typhoid has not this power.

Another example is the production of albumens and peptones from other albumens in a manner apparently similar to the action of the digestive juices in the alimentary canal. A very common property of bacteria is the power of digesting and liquefying gelatine.

The carious action in teeth is probably due to the fermentative action of bacteria which can convert sugar into acid, this being applied continuously.

This introduces us to the third aspect of the question—their power of producing disease. If we place under an animal's skin a small amount of pathogenic bacteria, the animal gets first, it may be, a local infection, then a general infection, and dies of the disease. The microbe kills the animal by manufacturing a poison, and the process of manufacture may be called a fermentation of the albuminous materials in the animal. The poisons have been isolated in the form of peptones and albumens. These resemble in their chemical nature the poisons which are secreted by snakes. In regard to the exact facts, much work remains to be done. A similar invasion takes place in a disease; that is to say, the specific bacteria gains a footing, and if the conditions are favourable it becomes a general infection, and we contract the disease.

If we place in a culture medium a growth of a pathogenic bacterium and leave it for some time, this medium becomes, even when filtered and free from germs, highly poisonous to animals. The toxity of the culture fluid is due to the same energy which enables it to produce the disease when it multiplies in the animal. This fact has been made use of in the treatment of disease, and very successfully in a very deadly one, diphtheria. An antitoxin is prepared by immunising a horse by injecting it with the poison of the diphtheria bacillus. The immunity of the horse is transferred to the child suffering from the disease by injecting under its skin a dose of the serum of the immune horse. If taken in time this treatment is almost always successful. This principle is applied, in an experimental way as yet, to the treatment of several diseases, and it is hoped in time may be a most satisfactory method of treatment.

One of the most simple, and at the same time positive examinations that can be made is that of the sputum of a phthisical patient. We take a small quantity and spread it on a cover glass, dry carefully, then stain; first flood the cover glass with carbol fuchsin, heat slightly, leave for a couple of minutes or so, then wash in water, then with dilute acid (which acid does not much matter, HCl. is as good as any)—this is to remove the excess of stain from the surrounding tissue—again wash in water, now stain again for a few minutes in methylene blue, wash in water, dry and mount in balsam. If we now examine this preparation under the microscope and find scattered through it a number of rod-like organisms stained a deep red, we may be sure the patient has tuberculosis, and is not in a good way. This method is, as I say, specific for that particular bacillus; it is difficult to stain, and when stained retains the colour well.

I have to thank my friend Professor Lorain Smith and his assistant, Dr. Tennant, for their kindness in preparing the culture tubes and the microscopic preparations from which my photographs[1] are taken. Now I have to thank you all for the kind and patient way you have listened to my disjointed and rambling remarks.

Valedictory Address.[2]

By C. REES PRICE, L.D.S.Eng.

Gentlemen,—Our Hon. Secretary has, I see, put me down for a Valedictory Address. On the journey north to Inverness to-day, thinking over what I might say, when passing near the Macbeth country, the well-known sentence occurred to me:

> "If it were done, when 'tis done, then, twere well
> It were done quickly."

Gentlemen, I will be very brief. As regards the Branch, during the two years I have had the honour to hold the office of President, the progress has, I am glad to say, been satisfactory. Two years ago, in my address to you at Dundee, I gave it as my opinion that we could only look in the future to incoming members of the profession for increasing the membership of the Branch. We had really gone over all the older members, and could only hope and depend upon those who were getting qualified. I think it may be taken as satisfactory that during the last two years we have added seventeen members to the Branch, though, owing to resignations and deaths, the total membership is 92 as against 84.

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[1] Mr. Andrew, in the course of his address, showed a number of original microphotographs illustrative of the different kinds of bacteria.

[2] Delivered at the Annual Meeting of the Scottish Branch, June 9, 1899.

[illegible] Treasurer [illegible] us in many ways. [illegible] and always [illegible] Branch. [illegible] our Meetings, [illegible] Society [illegible] and appreciated [illegible].

Our Treasurer's [illegible] ways, as [illegible] had got into some confusion. This confusion was [illegible] remedied by our [illegible]-treasurer [illegible] has been brought [illegible] reports [illegible]. The Reports of the East and West District Committees [illegible] read show that these Committees have not been [illegible]. They have not perhaps had a lot of work [illegible] since September, but such work as has been presented to them they have done to the best of their ability.

Regarding the British Dental Association generally, the most important event since the Lanark meeting of the Branch has been the passing by the General Medical Council in December, [illegible] of a resolution declaring it infamous conduct in a professional respect for any medical man to give anaesthetics for, or to assist in any way, an unregistered dental practitioner. The Branch at its Annual Meeting at Lanark passed a resolution in this direction, which, on consideration, the Branch Council could not carry out in its entirety. Action was postponed until the decision of the General Medical Council was known. To-day your Council has decided that a circular be issued to every medical man in Scotland, drawing attention to the resolution passed by the General Medical Council.

I think the time has now arrived, when the Association is entering on its majority, for only registerable qualifications to be placed after the names of members in the yearly list issued by the British Dental Association. This alteration must come at some time, and I think we are ready for it now.

The late issue of the Dentists' Register this year has been the cause of much unfavourable comment, and to me the explanation given is not a satisfactory one. It is very important that in Edinburgh and Glasgow, at least, we should have a correct list of dentists, and we cannot expect this unless we have a Register published within a reasonable time.

At the recent meeting at Ipswich one of the most prominent features was the way in which the newly formed School Dentists' Society was received. I think it has come to stay, and also to show good work. The Schools Committee of the British Dental Association is defunct, and the School Dentists' Society has taken its place in a more active form.

The Ipswich meeting was again held at Whitsuntide, a very unfortunate time for the Scottish members of the B. D. A. Regret has been expressed that there were so few Scottish members at Bath and Ipswich, but I do not think that the members of the British Dental Association in England appreciate the fact that by holding the meeting at Whitsuntide they are practically disfranchising the Scottish members. The meeting could not possibly be held at a more inconvenient time for Scotland. The meeting place next year is to be at Leeds, with Mr. Brunton as President, and I might express the hope that Scottish members will be present in greater numbers.

The Lord Chancellor has introduced a short bill to put an end to the promotion of "one man" companies, in so far as in this way the Medical and Dental Acts are avoided. It has, I think, but little chance of being passed this year, but, if any of you have influence with Members of Parliament, I would urge you to use that influence in favour of passing the Bill. By it the public and the medical profession will be greatly benefited.

Gentlemen, I beg to thank you and the Council and Officers of the Branch for the courtesy and kindly forbearance you have extended to me during the last two years.

I have now only one other duty to perform, but it is a very pleasant one. I have to introduce to you your new President, Mr. Leslie Fraser, of Inverness. Some of you see him to-day for the first time, but I feel sure that when our two days' meeting is over, you will regret you did not know him years ago. Mr. Leslie Fraser is an old friend of mine, and a better man in every respect for the office of President of this Branch could not be. He is not only a good man as a dentist, but he has the whole welfare of the Dental Profession at heart. While he occupies the office of President you may rest assured he will do his very best in every possible way for the profession.

Inaugural Address.[1]

By J. L. FRASER, L.D.S.Edin.

Mr. Past President and Gentlemen,—Permit me to offer you my heartiest thanks for the great honour you have done me in electing me to the office of President of the Scottish Branch of the British Dental Association. When I think over the names of many of the men who have filled the presidential chair in past years, I cannot help thinking how utterly unworthy I am of the honour you have this day conferred upon me. I would assure you all that it will be my earnest and honest endeavour to preside over the various meetings of the incoming year in a way worthy of the confidence you have placed in me. I have to offer you all a very hearty welcome to the capital of the Highlands, and I sincerely trust that for the very short time you are to be in this good old town you will enjoy yourselves thoroughly, and have many opportunities of seeing and appreciating the beauties of this part of Scotland. I do not intend to detain you very long with anything in the shape of a Presidential Address, for I know you must all be more or less fatigued after what is still a somewhat tedious journey from the South. In casting about for a subject I thought I could not do better than offer for your consideration certain views I hold on that evergreen subject "Dental Education." Much has been said and written on this most important theme, and I fear a great deal more will have to be said and done before our educational methods can be considered anything like satisfactory. Different men have different views on the subject. One will tell you that the theoretical part of our training is not nearly complete enough, and that certain abstruse and apparently outside subjects should be added to the curriculum of the dental student. Others will tell you that the dental student should acquire his early mechanical training in a dental school, while yet others insist upon his being trained under the guidance of a qualified dentist. You will be told by some of our brethren that the only true path to perfection is in having granted to us a higher qualification in the shape of a University degree. I am inclined to think that a University degree in Dentistry, in connection with a chair of Dental Surgery and Pathology, would work for good in many ways. The various contentions of different men are too numerous to mention. Taken as a whole, they are, generally speaking, not reconcilable one with another. Personally I am not imbued with the idea that a theoretical knowledge of a large number of abstruse subjects is absolutely indispensable towards making a dentist a professional success. That there are excellent schools for the teaching of Operative Dental Surgery in this country nobody will for one moment deny. But it often seems to me that a great number of the young men who attend the various schools do not seem to be able to assimilate the knowledge that is imparted to them by only too willing teachers and demonstrators. In not a few cases young men leave their Colleges stuffed with theoretical knowledge, duly qualified to practise Dentistry, so far as the holding of a licence is concerned, but utterly unqualified in the matter of a thorough practical knowledge of their work. Now, this is a somewhat disquieting state of affairs, and there must be some explanation for it. I have quietly interrogated a number of young dentists during the past few years when occasion occurred. The general cry among them is "no time to attend the hospital," "too many classes and too many subjects crowded into one another," "time too short," &c. These reasons may explain the state of matters to a certain extent, but to my mind the explanation is neither satisfactory nor complete. I have been considering the matter for some time, and I have a reason to offer for your consideration. I do so with a certain amount of diffidence, knowing quite well that I am walking on rather thin ice. I offer my explanation honestly, and without the very slightest idea of being in any way personal in my remarks, and I hope they will be accepted in the spirit in which they are given. Why is a dental student obliged to devote such an absurdly large percentage of his time to grinding up his theoretical subjects for a professional examination? Simply because he knows very well that he has to undergo a drastic examination in these subjects. Does he devote one hour more than he can help to the practical part of his work at the Hospital—to the work which is going to make or break him for life? Does he seek out work for himself in the Hospital, or does he exert himself in the least towards acquiring anything like an adequate knowledge of the intricacies of operative work? Not he. In the great majority of cases his mind is not on the practical side of his work. Why is this the case? Simply because he knows quite well that the examinations, if they deserve that name, connected with the practical departments of his work—mark me, the *practical* departments—are neither more nor less than a farce. Do not misunderstand me. I do not insinuate for a moment that the fault lies at the door of the examiners, for it does not lie there; it lies at the door of the Colleges who take the examination fees and grant the licences. Is Clinical Dental Surgery, I ask you, with all its important ramifications, methods, instruments and appliances, of such trifling importance that it can be disposed of at the hands of an examiner in the matter of two or three hours? Where is the examiner who can satisfy himself, in that time, as to the efficiency of a candidate in filling with gold different cavities in different parts of the mouth and under varying conditions? Does said examiner satisfy himself in the short period named as to a man's ability in filling with amalgams, filling with different cements, with gutta-percha, filling roots with various materials, wedging and separating of teeth preparatory to filling, the contouring and finishing of gold work, the application of the rubber dam, the matrix, and clamps, under innumerable conditions? Does he satisfy himself as to the ability of the candidate to prepare a root, and adjust to it a Logan Crown, or any other porcelain crown? Has he time to compel the candidate to demonstrate that he can make and finish perfectly a porcelain-faced gold crown, an ordinary gold crown, or a bridge? Does he satisfy himself that every candidate understands the vital intricacies of the articulation of crowns, bridges, or ordinary dentures—that he understands hundreds of other features of the daily work of a busy dentist, such as the extraction of teeth with or without anæsthetics, the regulation of children's teeth, the preparation of cavities for, and the cutting, fitting, and finishing of porcelain inlays? I say emphatically, no. He cannot possibly satisfy himself on these points, and the fault is not his. The examiner does not exist who could get through a tithe of the work in the ridiculous time allotted to him for the purpose. The dental student knows this quite well and takes full advantage of it, much to his own permanent loss. He is quite satisfied if he can approach his examiner with, among other theoretical work, the dentition of a horse or of some artiodactyle ungulate glibly twittering on the tip of his tongue. That is all he cares for. Now, gentlemen, you will naturally ask if there is a remedy for this state of affairs, and I most certainly say there is. It is simply this: a much more drastic form of examination in actual practical work should be adopted by every College granting a licence, and I submit that no College has any right to grant a licence without the most ample evidence of ability on the part of candidates. There is no visible reason why such an examination in the different branches of dental surgery and dental mechanics should not be spread over a period of three or four hours every day for a couple of weeks. There is no reason why any competent examiner should not be able to run the examination of six, eight, ten, or more men in one room at the same time. He could go quickly from one student and his patient to another, noting down very carefully a memorandum of the different steps taken, methods adopted, originality evolved, rapidity in work, and results obtained in each individual class of work under examination at a given time. I imagine I hear some of you asking where is the examiner to be got, being almost all in busy practice, who could or would devote the amount of time which would be necessary for a prolonged series of searching examinations such as I suggest. My answer to that is that experience has demonstrated that such things can be got in this world by paying for them. Let the licensing bodies pay their examiners an adequate fee for the time and trouble involved in doing their work, and then you will not only get men to do the work, but you will have it well done. The colleges extract a high fee from the student for the privilege of being examined; then, I say, let the examination be thorough and of some practical value. If the fee demanded for such an examination as I suggest is not big enough already, then let the authorities demand more; the poor candidate will simply have to pay it. And the results, what are they likely to be? The first result would be a very rude awakening to the incompetent candidate. He would soon discover that he would have to acquire a thorough knowledge of operative dental surgery and dental mechanics. In order to acquire this it would also become evident to him that attendance at, and extended work in, the Dental Hospital was absolutely essential to his success in his clinical examinations. The other result would be that a much larger proportion of candidates would be precluded from starting the practice of a profession needing unusual manual dexterity, forethought, and ability, until they demonstrated that they were competent men. The end of it all would be untold benefit to those temporarily rejected, and to the public at large. I humbly offer these thoughts for your consideration, knowing you will accept them in the spirit in which they are given. I know there are several examiners present at this meeting, and they will, I am sure, take my word for it that any remarks that I have made are in no sense of a personal nature. They are uttered rather with a view to improving the conditions under which they, as examiners, are compelled to perform what must be to them on many occasions most discouraging and unsatisfactory work. All I ask is that if a young man is to be a qualified Dental Surgeon, he may be compelled to give ample evidence that he is thoroughly suited for the profession he has adopted.

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[1] Delivered at the Annual Meeting of the Scottish Branch, June 9, 1899.

Valedictory Address.[1]

BY J. C. FORAN, J.P., L.D.S.I.

GENTLEMEN,—It is not my intention to detain you more than a few moments. We have a long and interesting agenda before us to-day, and therefore, if for no other reason, I shall be brief.

In retiring from the Presidency of the Branch, I wish to thank every member for his assistance to, and forbearance with me during my year of office. No one is more conscious than I am of my many shortcomings, but, believe me, this was not due to any lack of interest in the Association or half-heartedness in its work. I am especially grateful to the Members of the Council for their regular attendance, and their patience and good temper, rendering the work of the officers both easy and pleasant. To our Secretary, Mr. F. V. Richardson, my grateful thanks are due; he has always been ready and willing to assist me in every way and on every occasion.

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[1] Delivered at the Annual Meeting of the Southern Counties Branch, June 24, 1899.

With regard to our work during the year, I think we may justly congratulate ourselves upon the progress we have made, especially in regard to the number of new members who have joined us, and also upon the increased attendance at our meetings. As you have just been reminded, our meetings have covered a wide area. Last June we met at Eastbourne, where we had a paper from Mr. Frank Harrison on a universal gauge. Hardly a day passes that one does not feel the need of some such standard as that suggested by him. The Council have had the matter under consideration, but, owing to the short time available at our meetings, nothing definite has so far been done, but I trust that ere long his ideas will bear fruit. We also had a most instructive and interesting demonstration by Mr. Vernon Knowles on the use of his "Compo' Swaging Flask." Our next meeting was held at Bournemouth in October, where everything was a success—but the weather—and where we were honoured by the presence of the President of the Association. It was the first visit of the Branch to that town, and the result fully justified the wisdom of the selection. It resulted in the welcome addition of four new members to the Branch, and two to the parent Association. Mr. Goadby reported a case and showed specimens of extensive "Necrosis of the Hard Palate." Mr. Dennant read a very thoughtful paper on "Dental Education." The discussion of this paper was continued at the Meeting at Tunbridge Wells, and the last word has not yet been said on it. Every day shows the great necessity for reform, especially in the more thorough training in the mechanical art. I think if the student could be brought to realise the absolute need *of being able to do good mechanical work* when starting in practice for himself, much good would result. The present method leaves much to be desired. In January we met at Hastings, where both the quality of the demonstration and the numbers attending were sources of great satisfaction. We were indebted to Mr. C. S. Reed for showing a method of clearing out and sterilising root canals, using a solution of permanganate of potash—a method I have since tried on several occasions and with most gratifying results so far. Mr. Vernon Knowles showed some further uses of his "Composition Swaging Flask." Mr. Anderson gave us a very interesting demonstration on the use of "Watt's Cast Metal," and Mr. Tait was both patient and instructive in showing us the ease with which metal plates could be swaged with Ash's "Swaging Press," and we were further indebted to him for showing a simple and useful method of making Celluloid Nerve Caps. Our next meeting in April, at Tunbridge Wells, was most successful, including the nomination of three local gentlemen as members, and where, owing to the thoughtful kindness of the Tunbridge Wells members, luncheon was provided for all the members of the Branch. Mr. Frank Bell read a very interesting paper on "Coned Porcelain Inlays," which led to a very instructive discussion in which many of the members present took part. Mr. Beadnell Gill opened a well sustained discussion on Mr. Dennant's paper, already referred to. Mr. Caush showed a mouth-prop with tube attached as a simple means of prolonging Nitrous Oxide Anæsthesia. In addition to the foregoing we have had interesting Casual Communications; amongst others, from Mr. Leslie Maxwell, Mr. Rymer "Unerupted Wisdom," Mr. C. Foran showed some interesting specimens met with in practice, and Mr. Ellis an ingenious pair of tweezers for placing crowns in position.

The work of the parent Association and of the General Medical Council has given us food for much thought during the year. I am sure that I am expressing not only my own regret, but that of every member, that the parent Association did not see its way to accept our invitation to hold the annual Meeting of 1900 in Brighton, with our esteemed Treasurer, Mr. J. H. Redman, as President. Of course we bow to the decision of the majority, and trust that the gratification of our wishes, both as regards the President and place of meeting, are only postponed for one year.

It now remains for me to carry out the unanimous wish of the Branch, and ask my old friend, Mr. John Wood, to assume the Chair as President for the ensuing year, and in doing so I heartily congratulate him upon his election. A better choice could not have been made, and I assure him of the very great pleasure it is to me to see him in this position. In conclusion, I wish him and the Branch a very happy, prosperous, and profitable year.

Inaugural Address.[1]

BY JOHN WOOD, L.D.S.I.

GENTLEMEN,—It is not my intention to weary you with any attempt at making a long address. I would, however, thank you very heartily for the honour you have conferred on me by electing me to the Presidential Chair of the Southern Counties Branch of the British Dental Association. At the same time I cannot but be conscious of my inability to fill the office in such a manner as to secure my own satisfaction, or to merit the approbation so justly accorded to my predecessors in past years; but will yield to none in my efforts to promote that goodwill and harmony which we all so much desire to see. I have had the privilege of being associated with the profession for many years, having entered it in the early fifties. I therefore have had ample opportunity of seeing the great progress it has made, both in education and social intercourse, and I am quite sure that under the presidency of none of my predecessors in this chair has the promotion of these functions failed in the slightest degree. I trust we shall ever proceed in the same spirit, and emulate those who have fought our battles in the past with such beneficial results to the present generation. I will not detain you any longer, as we have much more interesting work before us, so will close my few poor remarks by once more thanking you for your kindness in placing me in this most important position.

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[1] Delivered at the Annual Meeting of the Southern Counties Branch, June 24, 1899.

Valedictory Address.[1]

By J. T. CRAIG, L.D.S.Edin.

Gentlemen,—In taking leave of the Presidential chair it will be quite unnecessary for me to address you at any length. In the admirable *résumé* of the Meetings of the past year just read by our Honorary Secretary, the work done has been brought under a brief review, but I cannot allow this opportunity to pass without expressing my extreme regret that we were quite unable to arrange for a meeting at Leicester.

There were three conditions essential in order to bring about the success of such a meeting: an attractive paper so as to make it worth the members' while to journey to Leicester; a suitable day; and lastly, a convenient evening train for the return journey to Birmingham. But despite our best endeavours we were quite unable to secure these conditions, and, with reference to the latter, it will be obvious to all that to engage a special train at a heavy expense was quite out of the question.

Notwithstanding this, I trust that on some future date, under more favourable circumstances, it may be possible to hold such a meeting.

During my term of office I have missed the faces of many who were frequently with us some few years since, and whilst we have had a considerable accession of new men, and are always glad to welcome new additions to our ranks, yet, personally, I feel we shall always need those whose long connection with our Branch, and whose honourable position in the ranks of the profession have made their advice and practical interest of immense value, and whose presence at our meetings we shall always welcome and esteem.

Locally, our Branch has recently received recognition by the governing body of the proposed Birmingham University and our President for the time being will have a seat at the Court of Governors of that great centre of light and leading.

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[1] Delivered at the Annual Meeting of the Central Counties Branch, June 30, 1899.

On taking a wider outlook, we find that our Association has appointed a committee to act with our neighbours across the Channel in promoting a great International Dental Congress to be held in Paris next year, in celebration of the end of the greatest century of all time; and thus we shall show to the world that our British insularity, which has often led us into a position of isolation, is in no real sense a bar to those feelings of professional unity with our *confrères*, whether in the old world or the new, who will be drawn together on that occasion in the great French capital.

Indeed, the growth of professional good-feeling has largely characterised the present decade, and, in the pursuit of this and other worthy aims, we shall, I am sure, be stimulated by the example of our coming President, in whose favour I have now to vacate this chair, and to whom I may perhaps be permitted to say, in the spirit of the lines of a great American author:

> "Our eyes accord you welcome, and we come
> From North, South, East and West to greet you."

Inaugural Address.[1]

By A. E. DONAGAN, L.D.S.Edin.

Gentlemen,—I thank you very heartily for your kind reception, and for the pleasant words with which Mr. Craig has introduced me, and for the great honour you have done me in electing me as your President for the coming year; and I hasten to say that it will be my constant endeavour to promote the usefulness of the Branch, and as far as lies in my power to see that the honour and dignity of the high office to which you have called me is handed over to my successor in no worse condition from twelve months' wear than now when I receive it. As you well know, at Worcester when this mine was sprung upon me at the Council Meeting, I expressed considerable diffidence in accepting the office, but when the nomination of the Council was adopted by the general meeting I felt bound to fall in with the expressed wishes of the meeting, and determined to show that your confidence in me should not, if I could help it, prove misplaced.

Time is said to be the great healer of all our troubles; gentlemen, do not believe that too implicitly. The anxieties and doubts of my ability to worthily follow in this chair the distinguished presidents who have led this Branch since its formation have *not* been healed in twelve months, but have broken out into fears and tremblings, and personally I think the disease will last another twelve months. Becoming discouraged with time as a healer I call upon you as friends to help me cure my malady, and hope that by your kind aid and careful nursing the invalid may once more regain his usual strength.

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[1] Delivered at the Annual Meeting of the Central Counties Branch, June 30, 1899.

I throw myself on your mercy at once, and remind you of one point in which I have already failed the Branch. At Worcester, when you made me President-elect, it was also said that you made a precedent, in that it was the first time in the history of the Branch that a bachelor should hold the office, and it was suggested that for the sake of the Branch such a state of things should be altered. Well, gentlemen, I must confess that I am still *in statu quo;* this is of course rather a delicate subject, and I will not detain you with explanations, but simply leave it to your generosity to forgive me, if you can, for perhaps having raised hopes doomed to disappointment.

Having shown you to some extent with what a broken reed you have supplied yourselves, I ask you all to do your best in making this meeting a great success, both from a practical and from a social point of view. It is two years since we held an annual meeting in Birmingham, and we hope that you will find this gathering not less successful than the last. Around the festive board this evening we hope to revive many pleasant memories, and to listen to words of wisdom and the voice of melody; to-morrow we come back to serious business, and we are promised opportunities of seeing many pieces of interesting practical work. And here, for fear that some of you may have been mis-led by the freak of the satanic imp who juggles with the printer's type (the printer has, I believe, been executed) into the belief that you will have only ten minutes in which to snatch a hurried lunch and afterwards to catch a train, I may say that that is entirely erroneous; we have not to leave Birmingham until 1.40 instead of 12.40 as noted in the programme. The drive, together with the places of interest to be seen, will, I hope, be a sufficient antidote to the arduous labours of the morning.

The first point to which I should like to draw your attention this evening is one which naturally comes first in our career as dentists, and is therefore of paramount importance, for if it is true that "the child is the father of the man," it is equally certain that "the student is the father of the dentist," and as the student's studentship begins with the boy's apprenticeship, it will be well to consider how this can best be obtained. Those of us who are connected with dental teaching institutions cannot but be impressed with the varying amounts of mechanical knowledge with which students—after their two or three years' mechanical (more or less) training—present themselves to us, and as in a number of cases this is deplorably small, we ask ourselves how can this state of things be remedied? In many cases this is due to the ignorance of parents as to the status of the man with whom they intend to apprentice their son, and who believe that because a man advertises himself as a dentist the pupil will receive the necessary training in mechanical dentistry; with the result that many lads fall into the hands of poor-class and incompetent teachers. In other cases, again, no regular system of training is adopted, and the pupil is allowed to do just as much or as little as he himself likes, and thus it often happens that his two or three most important years are completely wasted. It has been suggested that the different schools and hospitals should agree to institute a mechanical entrance examination, which all students should be compelled to pass before commencing the second stage of their studies. This, I think, would be an admirable plan, and I look forward to the time when it will be an accomplished fact, but in the meantime there is another step which I should like to see taken. We may, I think, take it for granted that parents, before they decide upon a dental career for their sons, obtain from some dental school a syllabus of education, and it is in this that I should like to see a notice to the effect that parents of students be advised to apply to the officials for advice as to the best means for their son to obtain that amount of mechanical knowledge which will be necessary for him to possess before he is admitted to study at hospital and college. This would, I am convinced, be of considerable help to a great number of parents.

The extent to which this evil of want of mechanical training has grown has at last been recognised by the Colleges of Surgeons, and they have to some extent met it by requiring candidates to pass an examination in mechanics before admitting them to the final examination, but in so doing they have only thrown the responsibility on to the *hospitals*, and not on to the source of the mischief—the practitioner, who so frequently, for the sake of a premium, undertakes what in some cases he is incapable of, and in other cases is wilfully and capably negligent. It is therefore incumbent upon the hospitals and schools to protect themselves by united action; it is their duty to *supplement*, not to *supply*, the training undertaken by the private practitioner. Unless this want of adequate private instruction is remedied, it may become necessary, as was the case with medical training, to do away with the apprenticeship system, and to place the whole (mechanical as well as surgical) teaching in the hands of the various schools.

When this one blot in our curriculum has been removed, I believe that our system of dental education, our examinations and diploma of L.D.S., will be such a test of professional knowledge that the man who may gain that title will go forth to the world better prepared to labour amongst suffering humanity than one newly qualified in any other profession.

I have said that the L.D.S. examination is a splendid test of the fitness of a student to practise dentistry, but we must remember that this amount of knowledge is the *minimum* quantity, and, although it is so thorough that more need not be required by the average practitioner, we have had for a long time a number of students eager to push their studies further; and as time goes on and the status of the profession rises, we hope that the proportion of these men—honourmen I will call them—will be greater. At present the usual course for these men is to take the diploma of the Conjoint Board as a capstone to their L.D.S., because that is now the diploma which runs more closely in touch with the work they have been engaged upon in their college career. But is this course always to obtain? Does the possession of this diploma necessarily make a better dentist?—which after all *should* be our aim. I think not; and, although I say all honour to those men who work for and obtain that extra qualification, I think that we ought to exert all the influence we can to get a higher degree or diploma granted to us *as* dentists. The surgeon or physician has the advantage of pursuing his studies in his own daily work, and becoming a Fellow of his College, or a graduate in surgery or medicine in his University; but *why* should a dentist, if he is eager for advanced knowledge in his own profession, be compelled to devote his time to the more thorough treatment of general disease and midwifery, which will be of no practical use to him in his daily round? Surely there is scope in our own speciality, and in the various sciences connected therewith, from which a curriculum could be formed, which would prove of greater benefit to the future practitioner. I quite admit that it would be a suicidal policy to put forward any proposal which would separate us in any way from the medical profession, but so long as we retain the L.D.S. as our *chief* and *universal* diploma, and so long as our representatives sit upon the General Medical Council and our affairs are administered by that body, I do not think that the granting of a university degree or a more advanced diploma from the R.C.S. *would* have that effect. It is not that we want a degree that would be more easily obtained than the conjoint diploma, but one that would run upon lines in closer connection with our own work. There are, of course, two sides to the question, and at present—as was shown at the meeting at Ipswich this last Whitsuntide—the majority is against any alteration in purely dental qualifications; but the movement has been started, and it behoves us all individually and collectively to carefully study the matter in all its bearings, and I hope that the result may be that we may before long be able to show a *united* front in the demand for a higher dental degree, as opposed to the minimum medical qualification.

I now turn to a subject which is full of interest to us all as performers of painful operations, that of Anæsthetics in Dental Surgery, and especially to the strides which have recently taken place in connection with the administration of nitrous oxide gas, which may be described as an anæsthetic introduced *by* dentists *for* dentists, but which, in consequence of improved methods of administration, is now being more freely used in general surgery.

I need not tell you that it was first introduced by Horace Wells in 1844 for the painless extraction of teeth, but that he was not successful in introducing it into general use. In 1868 Colton, with the assistance of Dr. Evans, of Paris, demonstrated its anæsthetic properties at the Dental Hospital of London, and since that time it has been so used, with certain modifications, for short operations. *For* such it is the *beau-ideal* of an anæsthetic, requiring little or no previous preparation of the patient, and, with due precautions, safe, the patient making a rapid and comfortable recovery. It, however, possessed the serious disadvantage in that the period of narcosis was extremely limited, the utmost time at the disposal of the dental surgeon being only about 35 seconds for each administration; therefore when a case presented requiring the removal of many teeth, or even of *one* of more than ordinary difficulty, it was customary or necessary to employ one of the major anæsthetics, ether or chloroform. Here we were met with increased danger to our patient, and to our own reputation. The number of fatal cases which happened during dental operations under these anæsthetics pointed to the desirability of devising some method of exhibiting a drug which possessed the safety of N_2O, but with which the period of insensibility of the patient could be prolonged. The use of the supplemental bag was formerly advocated as giving a somewhat longer narcosis, but this has been recognised as simply adding a certain amount of asphyxia, and although it was probably economical in the use of gas, it made no appreciable difference in the length of the anæsthesia.

Until a few years ago it was considered to be of the utmost importance in the exhibition of N_2O that the face-piece should fit the face of the patient absolutely, so as to exclude the possibility of any air being inhaled with the gas, and any excitement shown by the patient during the period of administration was attributed to leakage of air round the face-piece; but it was gradually proved that in certain cases (especially in anæmic patients) a small proportion of air admitted with the gas was in reality beneficial.

Dr. Hewitt in 1889 and 1890 demonstrated that the mixture of oxygen with nitrous oxide produced a very satisfactory narcosis, eliminating any danger of asphyxia which might have been present with N_2O alone; this state was marked by absence of cyanosis or jactitation, and he claimed that the period of anæsthesia (after a trial of 1,000 cases) could be made to average 45 seconds against 30 seconds with N_2O alone.

Carter Braine in 1895 introduced a simple apparatus by means of which air in certain proportions could be readily administered during the whole period of anæsthesia.

Mr. Coxon, of Wisbech, started to experiment in a new direction, and, in the end, after anaesthesia had been produced in the usual manner with the face-piece, a stream of N_2O—previously warmed by passing through metal coils heated with hot water—was passed by means of a bent metal tube *well* into the mouth, and it was shown that by these means a complete narcosis could be maintained, which was practically only limited by the termination of the operation. This method has been simplified and improved by our local friends Mr. W. T. Madin and Dr. McCardie (who do not consider it necessary to *warm* the gas, and who use a shorter tube which, placed just inside the buccal orifice, keeps the mouth full of N_2O, and, by keeping the nostrils closed, either with digital pressure or with a clamp, prevent its dilution with air). Mr. Caush of Brighton showed, at the recent meeting at Ipswich, a very ingenious mouth prop to which was soldered a short piece of metal tube, to which was attached a rubber pipe connected with the gas bag, and which consequently does not require the same amount of manipulation as the tube of Coxon or McCardie; by these means a patient can be kept perfectly anaesthetic for a period that is sufficiently long for almost any dental operation, and the operator can take his time comfortably, and have the mouth well sponged and kept clear of blood, being confident that his patient will not regain consciousness until he has finished his work.

Harvey Hilliard obtains the same result by passing a catheter through the nose into the pharynx, and continues the administration by keeping up a stream of gas in that manner. This method, of course, demands a great amount of skill on the part of the anæsthetist in the application of the catheter; our friend Vernon Knowles endeavoured to overcome this difficulty by having *two* rubber nozzles to fit the nostrils. Other nose-pieces of various forms have been introduced by which a continuous stream of gas is maintained through that organ, but perhaps the most successful is that brought out by Alfred Coleman and adopted by H. Paterson of London (which we hope to see used by him to-morrow).

This method is certainly more convenient for the operator than having a separate tube held in the patient's mouth, but we want to hear how it meets those cases in which nasal or naso-pharyngeal growths are present.

I think I may safely say that it is due to Mr. Coxon, ably seconded by these gentlemen I have named, and others, that the revolution which has recently taken place in dental anaesthetics has freed us from the necessity of employing the far more dangerous and unpleasant agents, ether and chloroform.

I should like to say a few words to you about the newly-formed School Dentists' Society. It has no connection with the British Dental Association, although it is in complete harmony with it, and it has taken up the work which was so ably begun by means of the Schools Committee of the British Dental Association, amongst whom we find such names as Fisher, Gaddes and Cunningham. This Committee showed, by examination and charts of over 10,000 mouths of school children, that more than 75 per cent. of such children required dental attention. The importance of these facts was brought to the notice of many governing bodies of public and State-supported schools, and in many instances dentists have been appointed to attend to the wants of children in this respect; until recently these school dentists have been working as units, and upon their own lines, and it was considered that if these units could be banded together their deliberations and collected opinions would carry much more weight with School Committes and Boards of Guardians. Accordingly, the Society of School Dentists was formed, with Mr. Sidney Spokes as President, and our very energetic member Mr. Fisk as Secretary; and, although it has not yet been in existence twelve months, it has already a very satisfactory list of members, and has done some very good service to the cause of school dentistry. Amongst other objects attained, I may say that they have received official recognition from the War Office and the Admiralty, who have both, at the instigation of the Society, issued a list of dental requirements for candidates for the army and navy.

I have spoken of this Society so that, if any of our members have school appointments, or are approached by school authorities, they may know and take advantage of such a Society for consultation as to work that is desirable and fees which should be charged—in fact, for any advice that they may require in dealing with such proposals.

It is also one of the objects of the Society to collect statistics, and to present them to our public educational bodies, with the idea that dental services may be rendered more freely to the rising generation, so that, given increased powers of mastication, the children may be able to enjoy better health, to make more progress with their education, and thus, as stronger citizens, make a better fight in the keen battle of competition, and so add to the welfare of the nation.

Gentlemen, I thank you very sincerely for the patient hearing you have given me in this my first appearance before you as your President, and I ask you for your kind forbearance in any mistakes or error I may make during the term of my office, assuring you that any such will be the result of ignorance rather than the want of goodwill on my part. The resistless sands of time have sped with their accustomed swiftness, and I have no doubt that you will join me in echoing the rejoicing cry of a fair lady at the termination of a celebrated equestrian performance at Coventry, "Thank goodness, I can now come to my close."

Abstracts and Translations.

Brittle Platinum Pins in Porcelain Teeth.[1]

Two Papers read before the Annual General Meeting, May, 1899, by W. Booth Pearsall, F.R.C.S.I., and G. M. P. Murray, F.R.C.S.I.

BY W. BOOTH PEARSALL, F.R.C.S.I.

In the year 1884 I made a maxiliary gold denture designed to carry pin teeth fitted on the gum from canine to canine, with tube bicuspids and molars to replace the natural teeth that had been lost from time to time from gouty inflammation of the sockets.

The pin teeth were backed with 18-carat gold plate, and were well fitted. The pins were bent on the backs of gold plate, but not rivetted.

The teeth were attached to the plate with sticking wax, and were duly positioned in the mouth to the satisfaction of the patient.

The gold plate and pin teeth were removed from the mouth, and invested at once in plaster-of-Paris and powdered pumice. The wax attachment was washed away with boiling water, the solder duly placed in position. The investment was heated slowly to redness on Fletcher's gas-heater, and the gold backs duly soldered. The case was polished and finished, and given to the patient.

All went well for a couple of weeks, when a central incisor "droped off.'

My patient came to me at once to have the defect repaired. A new central was prepared in lieu of the one that dropped off, positioned in the mouth, invested, and soldered.

Two days later came another disaster. The central I had placed two days before, together with the left lateral, had "dropped off"!

The pin teeth used were of American manufacture. The teeth were dark in colour, and not easy to get of the size and shape that was desirable.

The teeth that had "dropped off" were again duly replaced by fresh teeth from duplicate sets. The other teeth were, so far as my examination could determine their condition, in perfect order.

In three more days the patient returned again, with three teeth off, including the central and lateral that had been repaired.

I will not describe matters further, more than to say that I backed, fitted, and soldered eighteen teeth before the "dropping off" of these front teeth ceased to trouble my patient and myself.

I confess I was completely at a loss to account for such a succession of mishaps. I had carefully kept all the defective teeth, and on close examination and comparison I noticed a crystalline fracture of the platinum pins, quite unlike the fibrous surface we see when soft or sound platinum is deliberately broken across.

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[1] These papers having already been published, according to usage we confine ourselves to a limited abstract.

Enquiry from the depôt where I had purchased the teeth brought out the fact that the amount of platinum in the market is limited in quantity, and there has been, as you all know, a great increase in the use of platinum on the part of electricians. It was suggested that some adulterated platinum had been used, and the impurity used for adulteration was supposed to be zinc.

I do not for one instant imagine that any tooth manufacturers would deliberately use unreliabe platinum for pins. It does happen, however, that this brittle crystalline condition has been known to teeth manufacturers for over thirty years.

Although individual dentists have complained, and, indeed, in several instances, within my knowledge, have entered into a somewhat energetic and heated correspondence with the manufacturers, the latter have always steadily stuck to the defect as one produced by careless soldering, careless fitting, "over-heating," the use of deteriorated solder, and undue strain. I had not, strange to say, come in contact with anyone who had gone through a similar experience with the one I have just described, nor, indeed, had I ever heard of platinum becoming crystalline in dentistry, although I was familiar with the destruction of platinum crucibles in the chemical laboratory from contact with a smoky gas flame, or when heated after phosphoric acid had been used in them, without being carefully cleaned.

In 1895, Mr. G. M. P. Murray sent me some pin teeth, and asked my opinion as to the cause of the fracture of the platinum pins. Examination of the teeth showed the crystalline fracture close to the porcelain, such as I had observed in the teeth I have already described to you.

I found, in talking over the matter with Mr. Murray, that his experience was the same as my own, for the teeth had "dropped off" as spontaneously and fortuitously as if Sir Isaac Newton himself was in waiting for another example of the laws of gravitation.

Brittle plantinum pins have occurred in my practice in four cases:

One was the case of the patient I mentioned at the beginning of the paper.

Another was that of a patient with a maxillary gold denture, the pin teeth of which "dropped off," without any reason so far as I could then discover.

The other cases were single teeth, one in a vulcanite molar, the other in a soldered lateral.

Ever since Mr. Murray placed the defective teeth and pins in my hands, this most vexatious kind of accident and its cause have occupied my thoughts a good deal, and I have made a small collection of teeth which have "dropped off" in this unexpected way. In the specimens I have gathered, I found nearly as many examples of brittle platinum pins amongst vulcanite teeth, as amongst those used for soldering to metal plates. The defect is to be met with in the teeth manufactured by British and American firms.

I have also a continuous gum canine, the pin of which broke when I was pushing it into a wax card in summer weather.

You can see how crystalline the fracture is. This tooth has never been used; it is in the state in which it came from the manufacturers.

Since I first drew attention to this subject in the British Dental Association *Journal*, I have gathered a good deal of information. I am also gratified that the Irish branch spent some money on engaging skilled observers to work at the matter. Professor A. J. Scott, of the Royal College of Surgeons in Ireland, made micro-photographs of the fractured surfaces, which I beg to show you prints of; and Professor W. N. Hartley, F.R.S., made an exhaustive physical examination of a small number of defective pins, and a similar number of reliable pins.

I was already acquainted with the nature of the delicate work Professor Hartley had carried out, in investigating other metals with the spectroscopic instruments he has designed and developed in his laboratory. After due consideration, Mr. Murray agreed with me to place our material in Professor Hartley's hands for physical investigation. We were guided in this course by the fact that Professor Hartley had done so much work with the spectroscope, and is the only scientific chemist in the world who has all the necessary apparatus for photographing the spectra of minute quantities of metals when volatilized by the electric spark, or by the oxy-hydrogen jet. Professor Hartley has carried out this investigation, not only with great care and patience, but with sustained enthusiasm. The investigation that he has made for us is new to science, and we must hope that this minute physical examination will direct the attention of the platinum refiners to the fact that the defect can be avoided on their part, and warn teeth manufacturers that platinum pins are under serious suspicion of unsoundness.

Amongst the causes suggested for the "dropping off" of pin teeth we find the following: Rivetting; investments contaminated with base metals; overheating the teeth during soldering; impure solder; cadmium solder; rapid expansion and contraction in investment; soldering with a smoky flame; undue strain. Impurities in Platinum: phosphorus, phosphoric acid, zinc, carbon, iridium, arsenic, fluoric acid, hydrogen.

Rivetting.—I do not regard this operation as a cause of brittle platinum pins. I have rivetted numbers of pin teeth and never saw a crystalline pin. Porcelain teeth have been cracked and broken under the careless use of the hammer, and possibly from heating a strongly rivetted back.

In all these contingencies I have never seen a broken pin. Rivetting was needful when short pins were used in porcelain teeth. I prefer to bend pins on the backing and solder them.

Investments Contaminated with Base Metals.—Mr. Murray's experiments will show that investments can be mixed with fillings of zinc and lead, without spoiling platinum pins or the teeth. Investment material contaminated with base metals we do not recommend for daily use.

Overheating during soldering.—I have seen a few teeth backs sweated or melted, during the course of many years, from careless use of the blowpipe in soldering backs in confined positions, or from deflected flame. I never remember to have seen the pins spoiled. So-called overheating can, in my opinion, be avoided by slowly bringing the investment to a cherry red heat, and with a few jets of suitable blowpipe flame flowing the solder where it is wanted.

Impure Solder.—I am not aware of any impurities in solder. If it is purchased, it is supplied by firms of established reputation, who have no possible interest in selling a bad article. If it is not purchased, but made by the dentist himself, so far as my knowledge of the matter is concerned, only reliable material is used.

Cadmium Solder.—I have used cadmium solder for some years. Dr. Hunt, of Yeovil, and Mr. Goodman, of Taunton, have used it for many years.

Strange to say, I have never had a brittle pin when I have used cadmium solder. Dr. Hunt and Mr. Goodman have rarely met with brittle platinum pins.

Rapid Expansion and Contraction in Investment.—I do not think this has anything to do with the deterioration of platinum. Porcelain teeth may be cracked or broken from rapidity of heating or cooling, but not the platinum pins.

Soldering with a Smoky Flame.—I do not attach any importance to this cause, as few dentists now waste their breath heating up an investment with the blowpipe, "starting all cold," as Mr. Fletcher says in his catalogues. A *smoky* flame is not hot enough to melt the solder and make it run.

Undue Strain.—It has recently been suggested to me that the pins that have broken in vulcanite teeth, and in teeth that have not been heated by the dentist, have been subjected to undue strain. Some specimens of brittle pins in vulcanite which I recently sent to a large firm for inspection, in reply to a challenge that I could not produce twelve vulcanite teeth with brittle pins, have been pronounced victims of overstrain by this gentleman and two (unknown) mechanical dentists of considerable experience.

Undue strain, I am told, is shown by the way the pins pull out of the porcelain! This particular defect seems to me to point to an insufficient anchorage in the porcelain on the part of the pins. What is the strain porcelain ought to bear in structure, and the strength of pin? The closing power of the mandible has been shown to amount to some hundreds of pounds.

During my experiments with regard to this investigation I have been much impressed with the ease with which I can crush, with a pair of 7-inch pliers, the modern teeth in order to get out the platinum pins. In the case of some teeth I sacrificed, which have been in my stock and unused for thirty or forty years, I have had to use a hammer on an anvil to break out the pins.

You see, in every way one is met with objections and statements which do not clear up anything. They are advanced without any definite experiments to support them, and we know that brittle pins *have* existed for the past thirty years, if not longer.

I will now read Professor Hartley's physical report, and Mr. Murray will follow with an account of a number of experiments he has made with a view of determining whether some of the *causes* I have just mentioned are to be accepted as proved.

REPORT ON BRITTLE PLATINUM, BY WILLIAM NOEL HARTLEY, F.R.S., PROFESSOR OF CHEMISTRY, ROYAL COLLEGE OF SCIENCE, DUBLIN.

I received from Mr. W. Booth Pearsall, F.R.C.S., on May 23rd, 1898, a small packet containing ten pin points of brittle platinum wire which had been in use for dental purposes with a similar number of points in another packet labelled tough platinum. I was requested to examine the brittle platinum for impurities of a metallic nature supposed to be present. The quantity of defective material placed at my disposal was small, as may be judged from the fact that the largest fragment of wire was only 1-25th of an inch in length. As eight of these had a total weight of 0·1819 grammes, it may be concluded that the whole of them did not weigh more than 0.2274 grammes. I was informed that they had been examined microscopically and found to possess a crystalline structure. I ascertained this fact independently. The pins broke readily on bending, and though they did not break under the hammer, the flattened wires had ragged edges, which shows an imperfect malleability. It was my desire, if possible, to examine each fragment separately, as they might differ somewhat in composition.

The very small quantity of material available would render any attempt at ordinary methods of analysis by separating the constituent substances entirely futile, even if the whole were employed in a single analysis. It was decided to rely upon spectroscopic methods, but considerable difficulties were encountered in operating on fragments of metal of such very small dimensions Between thirty and forty photographs of spectra were obtained and carefully examined, many of these were in parts greatly enlarged, some of them to ten diameters.

It was proved beyond doubt that the following metals are most certainly completely absent, namely: zinc, cadmium, copper, silver, mercury, tin, lead, arsenic, antimony, bismuth, tellurium, nickel, cobalt, aluminium, gold chromium, and also the metals which would scarcely be expected to be found in platinum—namely, iridium and thallium.

A very careful examination was made for iron, as this element is difficult to remove entirely from platinum. For this purpose a spectrum of pure iron, and one of the purest platinum which, perhaps, has ever been prepared, were photographed. It was found that the pure platinum electrodes gave spectra identical, line for line, with the spectrum of two fragments of brittle platinum. I conclude, therefore, that any metallic impurity in this platinum must be in such a very minute proportion that it is impossible for it to cause the brittleness.

The comparison of the platinum spectrum with that of iridium showed that the strong lines of the latter element were absent from the platinum spectrum. There remain now certain non-metallic elements, such as phosphorus and carbon, and metalloids, such as tellurium and arsenic, all of which can cause brittleness in platinum, but the two latter have proved to be absent from these specimens. Phosphorus has been added to native iridio-platinum in the United States for the purpose of rendering it fusible.

It is said that phosphorus is entirely eliminated from the iridio-platinum alloy by continued heating. There appears to be nothing more than a very minute trace of iridium in the metal, and the brittleness is not caused by that, because, if it were, melting would not improve its malleability; proof of this occurs later. It is, however, very probable that phosphorus may be present, and as the effect of phosphorus in minute proportions is to render platinum brittle and crystalline, the properties seen in the pins, taking this view of the matter, is quite what might be expected. Phosphorus would not be detected by the method of spectrum analysis, and it is extremely doubtful if any chemical method of separation would satisfactorily afford proof of its presence when so small a quantity of material is available for analysis.

Carbon also renders platinum brittle. The platinum cones or caps used in the ignition of the mixture of gas and air, or petroleum vapour, which is used in gas and oil engines, become so brittle that they may be broken up between the fingers. I am of the opinion that some non-metallic impurity, either carbon or phosphorus, is the cause of the brittle and crystalline character of this platinum, either of which substances might be introduced in the working up of old platinum. Both phosphorus and carbon can be eliminated by prolonged fusion of the platinum under the oxy-hydrogen blowpipe flame. Accordingly, I fused the remainder of the fusible pins, and find that the metal is now greatly improved in malleability, which is a strong confirmation of my opinion.

NOTES ON THE METHOD OF INVESTIGATING THE COMPOSITION OF THE PINS OF BRITTLE AND TOUGH PLATINUM, AND THEIR COMPARISON WITH PURE PLATINUM AND IRIDIUM, BY WILLIAM NOEL HARTLEY F.R.S., PROFESSOR OF CHEMISTRY, ROYAL COLLEGE OF SCIENCE, DUBLIN.

FOR the minute chemical analysis of mineral substances, where the quantities of the substances dealt with are so small as to be beyond the skill of the chemist to separate and weigh them separately, it has been found advantageous to employ spectrum analysis aided by photography.

Generally speaking, a photographed spectrum is a chemical reaction distributed in time and space. It is, in fact, a series of as many observations as there are lines in the spectrum photographed, for every line has its meaning. The length and strength of the lines is an indication of the quantity of material to which the lines belong, and which is present in the flame or spark, used to vapourise the substance, and it also indicates the proportion of the substance present in the material examined. In this manner, or, more correctly speaking, by carrying out this principle, ancient coins and jewellery have been quantitatively analysed without submitting them to injury.

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The method in this case of the platinum pins consisted in passing between their points a rapid succession of powerful electric sparks, condensing the rays on the slit of a spectroscope, and photographing the spectra obtained. The pieces of metal were only $\frac{1}{15}$ in. in length, and peculiar difficulties were thereby encountered. It is necessary that the screw pincers which hold the points be good conductors of electricity, and they are, as a rule, made of steel.

The sparks were found to pass from the steel as well as from the platinum; although their passage was not actually visible, nevertheless sufficient iron was volatilised with platinum to vitiate the results of many experiments. To obviate this, various devices were resorted to, and that finally and successfully employed was to fuse on to the platinum pins a wire of pure gold.

The electricity passed through the gold wires gave a succession of sparks, in which the material of the platinum pins was vapourised, along with a very small quantity of gold from the wire conductors. The lines of gold are known, and on observing the spectra they were easily picked out. On comparing the brittle platinum with the spectrum of pure platinum, it was seen that the spectra were line for line the same, except at one portion, and the better to compare the two, the plates were enlarged and prints taken from them just at the region where they seemed to differ.

The result of the examination is shown by the notes made on the prints Previous to this the plates were carefully examined for the lines of metal likely to cause a deterioration in platinum, and their absence was proved Since then I have examined the spectra for silicon, which element, it was thought, might be present, but I have not found any indications of it.

Both iridium and iron are difficult to separate entirely from platinum, and on this account I looked particularly for their presence in any appreciable quantity, without success. I may add that palladium, rhodium, arsenicum, and rhuthenium were also sought for, but were found to be absent.

A good deal of trouble was occasioned by two lines which were remarked in the spectrum of brittle platinum, tough platinum, pure platinum and iron, being close to two silver lines.

The wave lengths of these lines are in the dark spectrum :—

	I.	II.
Of iron (Liveing and Dewar)	2625·2	2627·9
Of platinum (Exner and Haschek)	2625·41	2628·13
Of silver (Hartley and Adeney)	2625·2	2627·3

At first it appeared as if there was some impurity common to the different specimens of iron and platinum, the nature of which had not been ascertained, but these lines have now been proved to be really components of respective spectra.

I append a note of the various publications in which the methods of examination here put into practice are described, since they have not yet passed into common use among chemists and metallurgists, though accepted and acknowledged by the best authorities. They date back to 1879.

Hartley and Huntington : *Philosophical Transactions of the Royal Society*, vol. clxx., p. 257.

Hartley : " Description of Instruments and Processes Employed in Photographing Ultra-Violet Spectra." *Scientific Proceedings of the Royal Dublin Society*. New series, vol. iii., p. 23. 1881. Hartley : " Researches on Spectrum Photography in Relation to the New Methods of Quantitative Chemical Analysis." *Philosophical Transactions of the Royal Society*, vol. clxxv., pp. 49-325. 1884. Hartley: "Notes on certain Photography of the Ultra-Violet Spectrum of Elementary Substances." *Transactions of the Chemical Society*, vol. xli., p. 84, 1882. And Hartley and Adeney : " Measurements of the Wave Lengths of Rays of High Refrangibility in the Spectra of Twenty-one Elementary Substances." *Philosophical Transactions*, vol. cxcv., p. 63. 1884. Hartley : " Photography and the Spectroscope in their Applications to Chemical Analysis." *Journal of the Society of Arts*, vol. xxxiv, p. 396. 1886.

The medal of the Society was awarded for this last paper, which was merely an abstract of those previously published with demonstrations of the method of working.

" Spectrum Analysis, Practical Applications of." The article in Thorpe's " Dictionary of Applied Chemistry " (p. 536), published by Longmans, is from my pen. It contains a very brief account of my method of working.

Brittle Platinum Pins.

By GEORGE M. P. MURRAY, F.R.C.S.I.

THE negative result of Professor Hartley's spectrum analysis cuts two ways. It proves that the brittle pins contained originally no metallic impurity ; but it also proves that no such impurity was introduced by the dentist's fault, either by the use of base or unsuitable solder, contaminated investment, or in any other way.

It is probably the experience of most victims of this very annoying and disconcerting accident that it is more often found to happen with plate teeth than with vulcanite, but this, we venture to submit, does not prove that soldering has anything whatever to do with the case, or that brittle pins exist more frequently in teeth so dealt with.

That brittle pins have some cohesion and some tensile resistance is, we think, evident from the fact that they often stand use for some weeks before parting company with their mounting; and it would seem as if they had a better chance of surviving when anchored into a comparatively yielding and elastic material like vulcanite, than when held between two such rigid substances as the porcelain and a metal backing—a condition specially unfavourable for the withstanding by brittle crystalline metal of even a slight jar. The fact of the lesion ever occurring in connection with vulcanite proves far more in one direction than the fact of its happening perhaps less frequently can possibly be held to prove in the other.

My first experience of "dropped-off" teeth was with four bicuspids which quietly came away from a vulcanite maxillary denture.

Engineers tell us of some conditions under which steel becomes brittle and unreliable, but that is after prolonged strain and constant vibration, whilst the fracture under consideration invariably occurs at the very outset of the pin's promising career, and in no case has it happened to teeth which had been long in use.

I would venture to anticipate a suggestion which has not yet been advanced, but will probably occur to someone to bring forward as a simple cause—namely, that a faulty backing, not properly home to the porcelain, throws a heavy strain upon the pins at their point of exit from the tooth, whilst in vulcanite teeth it might be held that insufficient support in the rubber threw all the strain upon the same point. These hypotheses, however, are exploded by one of Professor Hartley's experiments, in which he demonstrates that the fragments of the broken pins are themselves brittle and crystalline, and that when fused into a button the metal still retained these defects, thus showing that the brittleness was not confined to one point.

Light is thrown on an investigation of this kind by spontaneous and by deliberate experiments. Under the former heading falls our observation of what occurs in the ordinary course of things. Thus we observe that the heat applied to platinum in making the pins does not ordinarily render it brittle, neither does the heat of baking the porcelain. If heat were the cause, all the pins should be brittle. Nor are cases wanting, as we have seen, where the pins break without being subjected to any high temperature in soldering. We also know from observation, or spontaneous experiment, that direct violence usually breaks the porcelain, leaving the pins intact, and that a prolonged strain will draw the pins out of vulcanite, or even stretch them.

NOTES ON SOME EXPERIMENTS WITH PLATINUM PINS.

Fourteen plate teeth were taken, with presumably tough pins, as they had been in use in the mouth for over ten years—viz., nine American teeth (gold backing), and five English teeth (D.A. backing). All had been rivetted.

(1) With knife and hammer an attempt was made to split off English tooth from backing. Result: tooth broke away, leaving pins intact in backing.

(2) American tooth similarly treated. Result: identical with No. 1.

(3) American tooth—(*a*) similarly treated. Result: same as foregoing (considerable force required to split tooth away). (*b*) From the backing, one of the pins was broken away with pliers. Fracture fibrous.

These three experiments were intended to test toughness of pins in the teeth selected for experiment.

(4) American tooth invested in plaster and fresh sand, dried out and heated with blowpipe till backing was fused, then split off with knife and hammer. Result: pins so soft that knife cut deeply into them, one breaking through the uncut portion with fibrous fracture, the other coming away with backing; the latter, when broken off with pliers, shows fibrous fracture also.

(5) A repetition of No. 4. Result: pins remained intact in backing, one being broken with pliers shows fibrous fracture.

(6) English tooth, invested in plaster and sand, *containing filings of lead and zinc.* Heated up and soldered, and split away with knife and hammer. Result: very difficult to split off. Pins remained intact in backing, tooth breaking away. One pin being broken off with pliers, shows fibrous fracture.

(7) A repetition of No. 6. Result: identical.

(8) American tooth. *Investment containing lead and zinc fillings.* Heated to the extent of fusing backing, and then split off as in the other cases. Result: knife nearly cut through pins, fracture of uncut portion being fibrous.

(9) English tooth, invested in plaster and fresh sand, *heated up and soldered with smoky flame*, and split off as in other cases. Result: pins cut through by knife.

(10) English tooth similarly treated. Result: one pin broke (fibrous fracture) the other coming away intact with backing.

(11) American tooth. *Investment containing zinc and lead filings, heated up with smoky flame till backing was fused*, split off as before. Result: one pin nearly cut through, fracture through remaining portion fibrous. Other pin came away with backing.

(12) American tooth, invested in plaster and clean sand. Heated up and soldered with smoky flame, and split away as in other cases. Result: pins remained intact in backing.

(13) A repetition of No. 12. Result: pins very soft, nearly cut through.

(14) A repetition of No. 12. Result: pins came away with backing; one, on being broken with pliers, shows fibrous fracture.

These experiments would seem to show that neither "*over-heating*," "*impurities in investment*," nor "*a smoky flame*," will cause sound platinum pins to become brittle or to break with the peculiar crystalline fracture which characterises the pins of the teeth which "drop off."

FURTHER EXPERIMENTS.

Four unused American teeth were taken, the remainder of a set of six. Of the two used, one had "dropped off" after a few days' use; the other is in use a year.

(15) The pins of three of these teeth were broken with pliers, leaving a fibrous fracture.

Some Practical Uses of Fusible Metal.[1]

By JOSEPH COCKBURN.

MR. CHAIRMAN, GENTLEMEN,—In choosing fusible metal as the subject of my few remarks this evening, I was led to do so chiefly by three reasons: —First, because I do not think it occupies that place which it deserves in our mechanical workroom ; secondly, it is very desirable that we as dental students should have some slight practical knowledge of its uses, as we may be called upon at a very important period in our career to show that we are not altogether unfamiliar with the part it plays in the mechanical laboratory ; and, thirdly, I thought that, as all the papers read at the Society during the Session have come under the category of "Dental Surgery," a mechanical subject would not be devoid of interest, for we must never forget that to make a successful practitioner the workroom and surgery must go side by side. I therefore trust that, by healthy discussion and interchange of thought and idea, we may be better fitted to fill the place we each hope to occupy in our profession.

Fusible metals are alloys composed chiefly of lead, tin, and bismuth, with or without cadmium, in various proportions. The effect of alloying these metals together is to alter very markedly their physical properties ; their fusing point is generally reduced to below that of the metal whose fusible point is the lowest. Thus, according to Bloxam and Huntingdon, the fusible points of Pb., Cd., Bi., and Sn., are 327, 321, 266, 232° C. respectively. Now, by alloying these metals together in the proportion of Pb. 5, Sn. 3, Bi. 1, we produce an alloy whose melting point is 200° F., so that we can easily melt it by standing it in boiling water. Another mixture of Pb. 5, Sn. 3, and Bi. 8, will also melt at 200° F.

The expansion of these alloys on cooling is very slight, about 3 per cent., so that a very sharp impression is obtained of any object from which it is desired to make a cast. Mr. R. P. Lennox, of Cambridge, has done much to bring fusible metal before the profession in England, whilst Dr. G. W. Melotte has largely introduced them to the profession in America.

I shall divide their uses into three divisions :—

(1) Those in connection with vulcanite work.
(2) Those in connection with crown work.
(3) Miscellaneous uses.

(1) *Vulcanite work.*—Let us suppose we have an edentulous upper and lower to make. I think you will all agree with me that, if we are to make a full upper and lower with any degree of satisfaction, either to ourselves or our patient, we must get a perfect articulation, or as we more commonly call it, a "correct bite." Now this has been and is still a continual source of trouble to the operator and is by no means an easy thing to accomplish. Very often the difficulty is in getting your patient to give a natural articulation, but it should ever be the dentist's aim to assist his patient as far as lies in his power to do so. It is therefore necessary that he should have a plate upon which to mount his wax blocks, to fit the mouth with perfect accuracy, without any fear of warpage from the heat of the mouth and from the strain put upon it by the patient closing into the wax. To my mind, there is no plate that fulfils these conditions so well as a fusible metal one. The way to make these plates is

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[1] Read before the Dental Students' Society of Ireland.

simplicity itself and need not take above a few minutes to accomplish. The method is as follows:—Having got your model, take a sheet of wax of suitable thickness and dimensions; warm and press on to your model, letting the wax reach to the edge of the alveolar border, and trim up to size required. Then, with a piece of wax about three times as thick as the plate and ¾ of an inch broad, attach it in the centre line to the front or posterior edge of your wax plate. The whole is then slightly French chalked and whilst on the model is enveloped with a layer of composition about ½-inch in thickness (I would advise using old composition for this purpose, as it is not so soft as the new). The composition is then cooled and removed from the model, the wax plate removed and fusible metal poured in and allowed to cool. I would here say a word of warning against melting the fusible metal with dry heat. It should always be melted by standing it in a metal cup placed in boiling water. The result is a beautiful rigid plate, fitting your model accurately at all points. The same procedure is necessary in making a lower plate, only I would advise your having wax slightly thicker than for an upper. Your wax blocks can then be mounted to a height suitable to the case and your bite taken with the best possible chance of success. If it is desirable to vulcanise off your model, you can wax up your case upon the fusible metal base, try in the mouth without fear of warpage, arrange the teeth to suit your patient best, and flask. I know of no other method of getting so perfect a duplicate of your original model. Its simplicity of manipulation is one of its charms. Very often it saves your patient an extra journey from the country, as the bite can be taken in a few minutes from the time the impression leaves the surgery.

A case in which fusible metal is of the greatest use is the following. You have a partial lower case to make. We will suppose that two or three incisors are out, and perhaps the second bicuspid and first molar are missing on each side. If some time has elapsed since the bicuspid and molar were lost, we generally find that the first bicuspid is leaning backwards and the first molar leaning forwards, forming a space in the mouth with a considerable undercut. Now, when an undercut can be used with success, we should take full advantage of it in the best possible way. By making a fusible metal base and waxing up, your case can then be tried in the mouth, and so manipulated as to go in the mouth with the least possible amount of wax being taken away. By inserting our case under the molar teeth first before bringing the incisors into place, we can get our plate to fill up the undercut underneath the molars. The case can then be taken out, flasked and finished, when it will go in the mouth, and a splendid fit can be got without a lot of manipulating with the sculptor by the operator, which would be the case if we vulcanised such a case on the model. I would here mention that in making fusible metal plates to cases where there are undercuts, they should be filled in with whiting made into a paste.

The next case in vulcanite is the following. A patient due to speak at a public meeting, or to sing at some concert, in the course of a short time comes to you in great distress, having broken off a front tooth from his case. He wants you to do your best for him, so that he may keep his engagement without any discomfort. You take his case, cut a dovetail exactly as you would if you were going to vulcanise on a tooth, secure your tooth in position with a little shellac or stent, and then melt a little fusible metal into the dovetail with the blowpipe or a hot instrument. When the metal is melted it tends to curve into a ball, but a slight pressure with the finger as the metal cools puts things right, and you have a very tight joint. You can put a tooth on in this way in a very few minutes, and earn the gratitude of your patient. I may say that I put a tooth on in this way some twelve months ago; the patient did not return for over six months, when the tooth was just as fast as when first put on.

A small temporary case can be made with fusible metal if required. The method is as follows. The case is waxed up exactly as for vulcanite. The teeth are then secured in position with plaster or shellac. A layer of composition is pressed over it as described above, the wax removed, and fusible metal poured in to take its place. If bands are necessary they can be put on by soldering a small piece of metal for a holdfast, and either left on the tooth when the wax is taken away, or heated and pressed into place after the fusible metal plate is made. The heated band melts the metal it comes in contact with, and is united to the plate.

Mr. R. P. Lennox has devised a means of making slab bites of fusible metal, but I fail to see where any advantage is to be gained over a carefully constructed plaster slab, or better still, a well made "hood-bite."

I will now pass on to the uses of fusible metal in connection with crown work.

First, as a means of making a mandrel upon which to shape your ferrule or collar. The method is as follows, and was first advocated by Mr. R. P. Lennox. Having prepared your root to be crowned, you proceed to bend up a ferrule with thin sheet copper. Leave the ends of your copper strip long, so that they can be grasped with a pair of pliers with bent beaks, and drawn tightly together so that the lower edge of the strip grips your root tightly in every place. The ferrule is then withdrawn from the mouth and soldered with soft solder. We now have a copper ferrule with a projecting lug, which grasps the root tightly at every point. At this stage the lug prevents the ferrule being pushed up under the gum, but this can be overcome by removing the lower half of the lug, when the ferrule can then be pressed up into its place under the gum margin. An impression is now taken with the ferrule remaining on the root. With the removal of the impression the ferrule is brought away with it, in its relative position to the root. It is then filled flush to its edge with wax, whilst a common pin is warmed and pressed head downwards into the wax. The impression is now cast, and when taken off we find the ferrule in its proper relative position upon the model. The wax is then scalded out and the projecting pin removed. It is then placed in position again and a small depression is cut in the plaster within the ferrule. Fusible metal is then poured in, and when cooling a slight pressure with the finger will result in filling the ferrule flush with fusible metal. The whole is removed from the model, the copper band is divided with a saw and removed from the fusible metal. You now have a fusible metal mandrel, the lower edge of which exactly corresponds to the root to be crowned, to which you can easily fit your gold collar. The strip of copper, if carefully removed, will act as a pattern for your strip of gold for the collar. Having made your collar, you build up your crown to the bite in the usual way with stent or hard wax. To make a die strike up the crown Dr. Mellotte's moldine and outfit are very useful. The procedure is as follows:—Fill the little tray (which is part of the outfit) flush with moldine, smooth the surface by pressing a piece of glass or some smooth surface upon it. Then slightly French chalk and press your crown gently into it to the depth of one-eighth of an inch. Carefully remove and stretch round the tray the small rubber ring (which is part of outfit). Fill up with fusible metal, and you have a die upon which to strike your crown. To obtain a counter die to this, place the rubber ring on the die already made and keep it very cold by letting cold water run upon it. Then melt fusible metal in the small metal cup, but before pouring your counter die, stir the melted metal with a small piece of wood until you see it beginning to granulate, then quickly pour. If care is taken that your fusible metal die is perfectly cold, and that you pour the counter die at the right moment, the two will easily separate, and you can strike up your crown in a few minutes.

If it is preferred to strike up your crown from a natural tooth before you make the collar, fusible metal makes a splendid setting for your tooth. The tooth is pressed crown downwards into the moldine, to an eighth of an inch in depth, but instead of removing it as before, you leave it there. The rubber ring is then put on as before, filled up with fusible metal, and you have a convenient setting for your natural tooth. A counter die can be prepared as described before and your crown struck up. Another very ingenious way of making a crown with the aid of fusible metal was shown to me by Dr. Mellotte some few months ago. Suppose you are going to cap a molar with a gold crown, with the intention of forming a support for a small bridge. The tooth having been prepared by making its walls perpendicular, he takes a strip of copper or 22-carat gold, somewhat broader than the tooth to be capped. He then roughly bends it up to the tooth in the mouth, when with a small piece of solder he unites the top edge of the collar, leaving the lower edge which goes round the neck free. He can then tighten the lower edge by overlapping the edges of the strip until he gets a perfect fit of the neck of the tooth. He then solders the joint and replaces upon the tooth the crown of which he has rubbed over with vaseline. The collar then projects slightly above the crown, thin plaster of Paris is run into the natural tooth, and when set the plaster and collar are removed, when we have an impression in the plaster of the natural tooth. Fusible metal is then poured into the impression and collar; when set, the plaster is removed and you have the crown of your tooth in fusible metal. He then cuts down his collar to the proper height, burnishes it to sides of the tooth, and casts a die to strike up the crown in the manner described before. The quickness, accuracy and ease with which a crown can be made by this method will only be appreciated by those who have to make them.

Under the heading of "Miscellaneous Uses," fusible metal can be used in a variety of ways by an ingenious mechanic, so that I will only mention a few, as in a paper of this kind it would be impossible to do justice to everything.

(1) It can be used to remedy the greatest drawback to tube work in gold-bar lowers, by being run in to fill up the interspaces between the necks of the teeth, thereby preventing them from becoming food boxes, which often become very unhealthy and disagreeable in the mouth.

(2) Where there is great exactness of articulation required between the artificial and the natural teeth, we may cast our model with fusible metal. It is advisable only to cast the teeth, as one of the drawbacks to fusible metal is its tendency to granulate if used in thick masses. Two or three pins should be stuck in the teeth so as to hold the fusible metal to the plaster, which can now be poured in to fill up the model. Casting a model in this way prevents any abrasion in letting your artificial teeth down to the bite.

Another way of using fusible metal I found very useful some few months ago in making a porcelain contour for a broken incisor. The mesial corner of the central incisor was broken off, the fracture extending about half the width of the tooth and half its depth, but not affecting the pulp cavity. The edges were trimmed and a cavity prepared without exposing the pulp. A small hole was then drilled down the side of the tooth in the dentine so as to admit a small platinum pin (an ordinary pin out of an old tooth was used, only made slightly smaller). An impression was then taken of the tooth and cast in fusible metal. We have now a model of the tooth in fusible metal upon which we want to make a contour with porcelain, so as to fit accurately. With a small drill in the engine, the fusible metal tooth was touched up so as to resemble the cavity as near as possible, a small hole being drilled into it in the same position as the hole in the dentine. Then a piece of thin platinum foil was burnished closely into the cavity and round the edges, the platinum pin was pressed through the foil into the pit made for it, and then the contour was built up with crown body and fused in the furnace. A second fusing was necessary to exactly build up the contour. The platinum foil was stripped off and the edges ground down. It was then fitted in the mouth, cemented in position and ground flush with the tooth, and a very neat piece of work was the result.

Mr. Gartrell, of Penzance, is using fusible metal largely to cast models with, and to these he swages up his plate by means of his shot swager. But I have not had the pleasure of seeing it used in this way; I will merely mention it as an indication that fusible metal will play an important part in the practical work of the future.

Lastly, but not least, is the use of fusible metal in making dental splints for fractured jaws, as advocated by Mr. Fenn Cole, of Ipswich. The shortness of time required for the manufacture of such a splint, its rigidity and cleanliness, are qualities which admirably adapt it for this purpose.

I thank you, gentlemen, for the kind attention you have paid to my few remarks, and I trust they have not been altogether without interest to you.—*British Journal of Dental Science.*

Obituary.

We regret to announce the death of Mr. Ashley Gibbings, of 18, Stratford Place, W., which occurred on the 6th instant. We hope to be able to give a full notice in next month's issue.

Editorial.

Union.

THE big sea between England and America was, a few years ago, of small account among the other great separating factors that kept the two nations apart. To-day it is almost the only thing that divides us; but in the broad and deep highway of professional intercourse which, like the Atlantic ocean, links and differentiates two great English-speaking nations, never, we hope, again to be estranged, there linger rocks of offence which surely need but recognition as impediments to be avoided or removed by our American cousins.

Every day something happens to remove a barrier, to destroy a prejudice, or to create a new bond of union, and it would be as strange as it would be unfortunate if better understanding did not reach to our own profession and its cis and trans-Atlantic practitioners. The *Cosmos*, in a recent article comments upon the differences of the past, and hopes, as we hope, for the closer union of the future; and it may hasten rather than retard these happier relations if we frankly consider for a moment certain lingering misunderstandings. First, there is the name "American Dentistry," an anomaly in itself, and as mischievous as it is absurd. Wherever educated scientific men live in any numbers there will be the best surgery, dental or other, that modern education and science can supply. The good men in America, Australia, Canada, as in Britain, will do the best possible work, teach all that should be taught, and advance the general fund of scientific knowledge from which all the world may draw. There are no secret systems or hidden mysteries in dental surgery, or in any branch of the great healing art; the man who refused to share his knowledge or his discovery would be banished from professional life.

Let us, then, get rid of an expression which infers some special inspiration, some miraculous excellence such as no educated professional man or body of men could claim without a blush. The

Cosmos is justly proud of the past achievements of dental workers over there, and so are we, and we must *both* be proud of those who, living over here, have made some not unimportant epochs in dental history. Whether their life's work be here or there, in the old country or the new, they are *ours* in the larger sense of the word, and we will be proud of them all *together*. Geographical features may limit and confine other nations, but our English speaking race refuses to be so constrained. The science and art of dental surgery is a building which we all build together, and in which we have to live together. Let us learn, living in it, to know each other better.

The name "American" has been put to very shameful uses in this country in connection with dental surgery. It has been the war-cry of quacks and charlatans irrespective of nationality; the uneducated impostor, the half-educated rogue, the ostracised and disgraced outcast from other walks of life—all have sheltered under this name undisturbed, and, what has most sorely tried the patience of British practitioners, without that prompt disavowal and unanimous protest that might have been expected from those who have a real title to the name of American dentist. This disavowal we feel is still due to the profession at large. We asked for it ten years ago, but in vain. Speaking at the Annual Meeting of the British Dental Association held in Dublin in 1888, the then sub-editor of this Journal appealed to all that was honourable and upright in America and in this country to openly and publicly disavow the thing that without justification assumed the great name of America as a cloak for vile quackery. Referring to the then dental invasion of Ireland, he said that from a journalistic point of view there were other worlds to conquer, in the task of obtaining the co-operation of American journalism in exposing and denouncing the frauds that were being daily perpetrated in the United Kingdom under the name of American dentistry. May we not now congratulate ourselves on having achieved at least a partial victory in the cordial utterance by our influential transatlantic contemporary of a hope for the final removal of every remaining misunderstanding. Happier times have dawned since that appeal was made. Ten years have passed away, and with them many old barriers have disappeared. The coming decade may have better things in store for us. We know that there is a magic in association, and a better knowledge of each other is perhaps all we want. A great meeting is in the near future at Paris; let us meet to bury the old recriminations and to recommence a new era of international dental surgery.

School Dentists' Society.

RECORD OF WORK DONE FROM SEPTEMBER, 1898, TO THE HALF-YEAR ENDING JUNE 24, 1899, AT ST. PANCRAS POOR LAW SCHOOLS, LEAVESDEN.

Number of children about 500; this varies somewhat. The dentist attends fortnightly, salary £50 per annum. A well equipped surgery is provided. The children are examined twice yearly. The large number of extractions is accounted for owing to so many temporary teeth requiring removal, the present dental appointment only dating from September, and for some time there had been no dental supervision. Tooth brushes are used, and the officials aid the dentist in every way.

Quite 90 per cent. of the children could comply with the dental regulations of the Naval Department recently published by the School Dentists' Society. Extractions with gas, 95; extractions without gas, 469; scalings, 70; permanent fillings, 151; irregularities, 13; obturators for cleft palate, 2. (£4 was allowed for materials.) Materials used are Lord's copper amalgam, Ash's standard amalgam, and Harvard cement. W. J. FISK, *Dental Officer.*

RECORD OF WORK DONE FROM JULY, 1898, TO JULY, 1899, AT ST. MARGARET'S SCHOOL, BUSHEY, AN INSTITUTION FOR THE DAUGHTERS OF THE CLERGY.

Number of children 100; ages from 7 to 17. The dentist attends weekly during term time. A very fair equipment is supplied by the committee. An annual salary is paid, but crowns and gold fillings are extra.

Examination of 100 children, 17 requiring no attention.

The work for the remainder was as follows:—Extractions with gas, 78; extractions without gas, 32; regulation plates, 5; amalgam fillings, 83; permanent gutta percha fillings, 22; white fillings, 14; gold fillings in front teeth, 7; gold crowns, 9; a gold crown with an artificial bicuspid attached, 1; scaled and cleaned, 17; pulpless front teeth filled, 2. No inlay work was done. At this school the authorities are very anxious that dental supervision should be faithfully carried out. W. J. FISK, *Dental Officer.*

Correspondence.

We do not hold ourselves responsible for the views expressed by our correspondents.

Mr. Rees Price and the Grants in Aid—A Reply.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—I am glad that the letter of Mr. Rees Price affords me another opportunity of addressing you on the subject of Grants in Aid of Dental Research. With regard to his complaint that the Annual Meeting was "left to guess at my intentions," I may say they were set forth on introducing the resolution, and more fully in my letter to the JOURNAL of May last; in the latter I even suggested a sum which might be voted for the purpose of the grants. Turning to another point, let me say that our Association having set to work, there is nothing unreasonable in asking the Odontological Society to join in assisting research by a money grant; but till now it would have been quite ludicrous for our members to suggest to other societies the performance of duties which have belonged to the British Dental Association since its foundation.

Again, it is neither "shifting responsibility" nor "waste of time" to leave details to be settled by the Representative Board, who best know how to shape means to ends. Indeed, with the example of administering a similar fund so admirably afforded by the British Medical Association, it could hardly be a plunge in the dark if our scheme, though a much smaller one, were to be modelled on theirs. And quite opportunely, the report of this year's grants, in the *British Medical Journal* of July 22, is at hand. It is really a pattern of the economical laying out of money; and I would commend it to the notice of Mr. Rees Price and other members of the Representative Board, for it illustrates the extraordinary amount and variety of work which can be set in motion by so small an outlay. Especially I would draw attention to one item in these lists of grants, and I read it not without shame. It is a grant of five pounds to a member of the British Dental Association "to continue investigations of bacilli of the mouth," especially in relation to dental caries. I would ask, is it to be left to the medical man to teach us what is admirable in our own department? and, whilst we reap the benefit, are we to suffer our research students to go a-begging for funds away from home? By a grant of five pounds the British Medical Association has assisted at dental discoveries which rank beside those of Miller, Black, Tomes, and Underwood, and which will be eagerly scrutinised by dental investigators throughout the world. With the right of publication of such papers our JOURNAL would also spread itself far and wide, and merely from a financial point of view it would be good business to increase the popularity of our JOURNAL by a few such grants. The whole thing must be, for some time, experimental; and first-rate work, deserving of assistance, is not at all likely to bear heavily on our finances. But with the extended training in bacteriology, &c., our budding investigators will require some help, and it is gratifying to feel our Association is the first in the dental world to recognise it.

I am, &c,

London, August, 1899. F. J. BENNETT.

Association Intelligence.

The Honorary Secretary of the Association desires to emphasise the statement he has on several occasions previously made, viz., that anonymous communications relating to cases of irregular practices, or alleged infringements of the Dentists Act, cannot receive from him that attention he would wish to bestow upon them, or they may deserve.

List of the Executive Officers and Members of the Representative Board of the British Dental Association for the Year 1899.

President of the Association—J. H. Mummery, M.R.C.S., L.S.D.Eng.

President-elect—G. Brunton.

Vice-Presidents—Sir Edwin Saunders, F.R.C.S.Eng. ; John Smith, M.D., F.R.C.S.Edin. ; J. Smith Turner, M.R.C.S., L.D.S.Eng.

Treasurer—W. H. Dolamore, M.R.C.S., L.R.C.P., L.D.S.Eng.

Hon. Secretary—W. B. Paterson, F.R.C.S., L.D.S.Eng.

REPRESENTATIVE BOARD.

President—Storer Bennett, F.R.C.S., L.D.S.Eng., elected May, 1899.

Vice-President—W. H. Breward Neale, L.D.S.I., re-elected August, 1897.

J. Ackery, M.R.C.S., L.D.S.Eng., London.
G. Brunton, Leeds.
G. G. Campion, L.D.S.Eng., Manchester.
W. H. Coffin, London.
S. J. Hutchinson, M.R.C.S., L.D.S.Eng., London.
H. B. Mason, L.D.S.Eng., Exeter.
W. H. Breward Neale, L.D.S.I., Birmingham.
Lawrence Read, L.D.S.Eng., Newbury.
C. Robbins, L.D.S.Eng., London.
J. C. Storey, L.D.S.I., Hull.

Elected 1897.

J. S. Amoore, L.D.S.Eng., Edinburgh.
J. H. Badcock, L.R.C.P.Lond., M.R.C.S., L.D.S.Eng.
E. G. Betts, M.R.C.S., L.D.S.Eng., L.S.A.London.
J. T. Browne-Mason, L.D.S.Eng., Exeter.
F. Canton, L.R.C.P.Lond., M.R.C.S., L.D.S.Eng., L.S.A. London.
J. Fenn Cole, L.D.S.Eng., Ipswich.
F. Harrison, L.D.S.Eng. and Edin., Sheffield.
C. Rees Price, L.D.S.Eng., Glasgow.
S. Spokes, M.R.C.S., L.D.S.Eng., London.
W. H. Woodruff, L.D.S.Eng., London.

Elected 1898.

W. Hern, M.R.C.S., L.D.S.Eng., London
W. E. Harding, L.D.S.Eng., Shrewsbury.
L. Matheson, L.D.S.Eng., London.
T. Gaddes, M.D.U.S.A., L.D.S.Eng. and Edin., Harrogate.
W. A. Hunt, L.R.C.P.Lond. M.R.C.S.Eng., Yeovil.
W. R. Humby. L.D.S.Eng., London.
J. H. Badcock, L.R.C.P., M.R.C.S., L.D.S.Eng., London.
G. Cunningham, M.A.Cantab., L.D.S.Eng., D.M.D.Harv., Cambridge.
J. Walker, M.D.St. And., M.R.C.S., L.D.S.Eng., Beckenham.
W. Harrison, L.D.S.Eng., D.M.D.Harv., Brighton.

Elected 1899.

MEMBERS ELECTED ANNUALLY BY BRANCHES.

Central Counties—H. R. F. Brooks, L.D.S.Edin., Glas. and I.
Eastern Counties—R. P. Lennox.
Irish—A. W. W. Baker, B.A., M.D. and M.Ch.Dub., F.R.C.S.I., L.D.S.I.
Metropolitan—W. Rushton, L.D.S.Eng.
Midland—I. Renshaw, L.D.S.I.
Scottish—W. Bowman Macleod, L.D S.Edin.
Southern—J. H. Redman, L.D.S.I., D.D.S.Phil.
S. Wales and Mon.—T. G. Williams, L.D.S.Eng.
Western—E. Apperley, L.D.S.Eng.

EX-OFFICIO MEMBERS.

A. E. Donagan, B.A.Cantab. L.D.S.Edin., *President.* A. T. Hilder, L.D.S.Eng., *Hon. Sec.*	Central Counties Branch.
W. H. Hope, *President.* A. Hopewell Smith, L.R.C.P., M.R.C.S., L.D.S., *Hon. Sec.*	Eastern Counties Branch.
D. Corbett, Jun., F.R.C.S.I., *President.* W. G. T. Story, M.D., L.D.S.I., *Hon. Sec.*	Irish Branch.
C. West, L.D.S.Eng., *President.* W. H. Dolamore, L.R.C.P., M.R.C.S., L.C.S.Eng., *Hon. Sec.*	Metropolitan Branch.
G. G. Campion, L.D.S.Eng., *President.* D. Headridge, L.D.S.Eng., *Hon. Sec.*	Midland Counties Branch.
J. Leslie Fraser, L.D.S.Edin., *President.* D. Baillie Wilson, L.D.S.Edin., *Hon. Sec.*	Scottish Branch.
John Wood, L.D.S.I., *President.* F. V. Richardson, L.D.S.Eng., *Hon. Sec.*	Southern Counties Branch.
J. C. Oliver, L.D.S.Eng., *President.* J. P. Oliver, L.R.C.P., M.R.C.S., L.D.S.Eng., D.D.S.Penn., *Hon. Sec.*	S. Wales and Mon. Branch.
J. Laws, L.D.S.I., *President.* T. A. Goard, L.R.C.P., M.R.C.S., L.D.S.Eng., *Hon. Sec.*	Western Counties Branch.

Representative Board.

A meeting of the Representative Board was held at 40, Leceister Square, on Saturday, July 15 ult.

Present:—Mr. Storer Bennett, President, in the Chair; Messrs. Smith Turner, S. J. Hutchinson, J. Ackery, A. Hopewell Smith, S. Spokes, W. Hern, C. West, E. G. Betts, W. Humby, W. H. Coffin, L. Matheson, C Robbins, J. H. Badcock, W. H. Dolamore, and W. B. Paterson (London); G. Brunton (Leeds); J. H. Redman, John Wood, W. Harrison (Brighton); T. Gaddes (Harrogate); Lawrence Read (Newbury); G. Cunningham, R. P. Lennox (Cambridge); I. Renshaw, David Headridge (Manchester); J. S. Amoore (Edinburgh).

Letters and telegrams regretting inability to attend the meeting were received from the following members, viz., Messrs. J. H. Mummery, Breward Neale, W. B. MacLeod, W. A. Hunt, W. E. Harding, Fenn Cole, W. H. Woodruff, W. H. Hope, E. Apperley, Rees Price, W. Rushton, J. C. Storey, T. A. Goard, and Dr. J. Walker.

The minutes of the last meeting were read and signed.

Mr. West gave notice of his intention to move at the next meeting of the Representative Board that the Standing Order of the Representative Board, dated August 27, 1885, viz., "That once in five years the Annual Meeting of the Association be held in London or its neighbourhood," should be suspended in its action in the year 1901.

The following letter addressed to the Hon. Secretary was received and entered upon the minutes, viz. :—

Blackrock, Dublin,
June 10, 1899.

MY DEAR PATERSON,—I feel very much touched and gratified by the action of the British Dental Association in electing me a Fellow, and I beg you will convey to them my heartfelt thanks for the honour they have done me.

Believe me,
Very sincerely yours,
R. THEODORE STACK.

TREASURER'S STATEMENT.

The Treasurer announced that the balance in the Bank stood at £618; that the accounts to hand, but not paid, amounted to £300, that about the same amount was due to the Association from the publishers. He stated, further, that forty-two members were still in arrear with their subscriptions for 1898, whilst 280 owed for the present year. He expressed the hope that those gentlemen, especially those in arrear for 1898, would soon favour him with a cheque.

DATE OF THE NEXT ANNUAL GENERAL MEETING.

Mr. BRUNTON (President-elect) suggested to the meeting Whitsuntide as a time suitable to Leeds members for making the necessary local arrangements, and he hoped, in view of the successful meetings held by the Association in 1898 and 1899 at that period of the year, it might prove an acceptable time next year to members generally.

Mr. GADDES said he had made enquiries of the Principal of the Yorkshire College, and of the Dean of the Leeds Medical School as to the facilities for meeting in those institutions. He had been struck with the cordiality with which his enquiries, preliminary though they were, had been received. Both the Principal and the Dean had expressed themselves in favour of the meeting of the Association being held in the institutions under their superintendence, and were of opinion that no difficulty would arise to prevent such meeting being held either at Easter or Whitsuntide.

Mr. HUTCHINSON presumed the report of Mr. Gaddes was not a formal one, although it was most satisfactory.

Mr. GADDES assented, and desired it to be understood that his enquiries had only been of a preliminary character so far. He begged to move that Whitsuntide in 1900 be the date of the Annual General Meeting.

Mr. LAWRENCE READ seconded, and the motion was carried unanimously.

Mr. GADDES wished to mention that the Midland Counties Branch had quite recently held a Council Meeting, and the enthusiasm displayed at it augured well, he thought, for the Leeds meeting.

The PRESIDENT thanked Mr. Gaddes and the other members of the Midland Counties Branch for the trouble they had taken in the matter.

COMPANIES BILL.

The President explained the action already taken by the Business Committee in the matter, and submitted for the consideration of the meeting the printed letters previously circulated to the Board. After some discussion, suggestions were made for the amendment of the letters, and they were remitted to the sub-committee in charge of the business for action as circumstances might dictate.

GRANTS IN AID OF SCIENTIFIC RESEARCH WORK IN DENTISTRY.

The PRESIDENT explained that this matter had recently been before the Association at Ipswich and the principle was affirmed. The question remitted to the Board now, he said, was to devise the best means for carrying the principle into effect.

The following letter from Mr. F. J. Bennett on the subject was read.

TO THE CHAIRMAN OF THE REPRESENTATIVE BOARD OF THE
BRITISH DENTAL ASSOCIATION.

SIR,—Although not a member of the Representative Board, yet, as the mover of the resolution relating to the grants in aid of Dental Research at the Annual Meeting, I trust I may be permitted to say I regard it as a great gain that the Association approved of the principle, not merely as being a guarantee on their part to initiate a scheme for the encouraging of research, but further that, as the one really representative body of the profession, its example will undoubtedly carry weight should it be thought desirable to approach other bodies with a view to further assist research.

Although, of course, opposed to any reckless expenditure, I imagine the Representative Board will be willing to grant a sum sufficient to give the scheme a fair trial, though it may be on a small scale; but even should it be considered that the present state of the finances precludes the granting of anything more than a nominal sum, inadequate in itself to effectually carry out the scheme, yet the Board may be willing to entertain the idea of working in conjunction with aid from other sources, should it be forthcoming.

I am, &c.,

July 13, 1899. F. J. BENNETT.

Mr. SMITH TURNER proposed that the question be referred to the Business Committee.

Mr. CUNNINGHAM seconded.

Mr. HOPEWELL SMITH preferred a small and special sub-committee to deal with the question, and said he would like to see a sum of money set aside for grants in aid. He suggested for a beginning a sum not exceeding £30.

The HON. SECRETARY read letters from Mr. Bowman McLeod, Mr. Hunt, Dr. Walker and Mr. Storey on the question, all the opinions expressed in them being adverse to the apportionment of money of the Association as grants in aid of scientific research, or at least until the Association became larger and wealthier.

Mr. AMOORE agreed with a statement contained in the letter of Mr. Rees Price, previously circulated to members of the Board, that it was inadvisable at the present time to establish grants in aid. The principle had been affirmed by the General Meeting, it was true, but in a wide sense, he thought. He did not consider the grant of small sums of money compatible with the dignity of the Association.

Mr. WEST thought the British Dental Association might approach the Council of the Odontological Society on the subject. The Society was possessed of funds, and its aims were entirely directed towards scientific research, whereas the Association had other aims in addition.

Mr. **Gaddes** thought it would not be dignified for the Association to attempt to coerce the Odontological Society in such a matter.

Mr. **Robbins** desired to see no hasty action taken, and hoped that the question might be held in abeyance until at least application for a grant was made.

Mr. **Coffin** could not agree with all the statements contained in the letter he had received from Mr. Rees Price. He could not, for example, accept the view that the question of grants in aid was simply "a pious resolution." He believed the best course to pursue was to send the matter to the Business Committee. He, however, wished to make a suggestion, viz., that the Board might award a small prize or premium for the most meritorious paper read at the Annual Meeting of the Association. He put it forward as one of several possible ways of carrying the principle of grants in aid of scientific research into effect,

Mr. **Spokes** agreed with Mr. Coffin's suggestion, but he thought it should be looked upon as additional to the method of granting pecuniary assistance to men engaged in scientific research work, as practised in the British Medical Association.

After further discussion the resolution of Mr. Smith Turner was carried.

Other business was then transacted and the meeting adjourned.

Metropolitan Branch.

A largely attended meeting of this Branch was held at the National Dental Hospital on June 27, when demonstrations were given.

Mr. W. R. **Humby** demonstrated the preparation of Black's amalgam. He said: The balance used is a diamond balance, guaranteed to turn to ·5 milligramme, and to carry 500 grammes. The furnace used is a Fletcher's injector furnace, No. 1 size. It is necessary that pure metal be used. The zinc and bismuth were obtained pure from "Baird and Tatlock's;" the gold and silver from "Johnson and Mathey;" the tin is commercial grain tin, which is usually chemically pure.

The composition of the alloy to be prepared is as follows:

Silver	68½ per cent.
Gold	4 „
Tin	25½ „
Zinc	1 „
Bismuth	1 „
Total	100

Before the metals are weighed up it is necessary to dry them thoroughly. They are placed in an oven—kept at about 150° F.—on a sheet of paper, and allowed to remain there until thoroughly dry. This drying is essential, because the metals, which are obtained in granulated form, contain an indefinite quantity of water, which water, if accurate weighing is to be done, must necessarily be removed. Now, the great difficulty experienced in mixing together metals with a high melting point with those which melt at a much lower temperature, is the risk to the lower ones of loss of weight by oxidation.

This means an uncertainty as to the result, and it is desirable to melt the constituents of the alloy in such a way that the loss is minimised. A flux of chloride of sodium and chloride of potassium—mixed in equal parts—is fused in a crucible and poured into a second crucible. The first is then allowed to cool. When it is sufficiently cool, the bismuth, tin and zinc are placed therein. The flux is then remelted in the second crucible, and poured over the three metals, which are thus enclosed and melted without access of air.

The silver and gold are placed on the top of the flux, and the heat is raised sufficiently high to fuse and mix all the contained metals. To prevent liquidation, a carbon rod, such as is used in the arc light, is filed to a point, and used to stir up the melted mass until the flux shows signs of hardening on the point of the rod. The crucible is then cooled as quickly as is safe—I place it on an anvil. When it has become cool, the crucible is broken, and the button of alloy is washed, dried and weighed. I have melted four thousand grains of the alloy in the above-mentioned manner, and the total loss has only amounted to 1·1 grs.

The button is filed up with a bastard cut file, eight inches in length and one inch in breadth. The filings obtained are very fine, and will sift through a silk sieve which has sixty meshes to the inch. A magnet is passed through the filings in order to remove the particles of steel which have broken off the file during the filing up. When this has been done the filings are placed in a test tube and boiled for fifteen minutes, the test tube being inserted in a water bath, which is kept at boiling point for the required time. At the expiration of the fifteen minutes the test tube is withdrawn from the boiling water, and placed in cold water to cool. When cool the alloy is ready for use.

This alloy sets very quickly, and for contour interstitial work it is better to mix a small amount sufficient to cover over the cement, then to adjust the matrix, and finally to mix enough to fill up the remainder of the cavity. In the micrometer tests, I made this alloy showed eight to nine times less movement than the best of the alloys I had hitherto tested. After the first two hours no change seemed to occur—a plug was left in the micrometer for one month, and at the end of that time no further change had taken place.

I should not advise anyone to file up more than enough for one month's use, as the behaviour of the alloy after the lapse of time is not absolutely known at present. Never use an excess of mercury, as this reduces the strength of the alloy. Mix only soft enough to allow of easy manipulation, and introduce it into the cavity as quickly as possible.

Mr. W. RUSHTON contoured a badly decayed upper molar with amalgam made from Dr. Black's formula, using Mr. Brunton's buckle matrix. A cap, which is provided with the matrix, was placed over the buckle to prevent chafing, and the patient went away with the matrix *in situ*. This is the special object of the matrix, as it can be left in place until a future sitting for polishing. Mr. Rushton also showed Dr. Leon Williams' porcelain crowns and posts, the different stages being demonstrated on Mr. Brunton's "Yorick," an aluminium dummy which represents with great accuracy the conditions met with in the living subject, and is of great use where the latter is not easily obtainable.

Mr. OLIVER RICHARDS prepared some porcelain inlays, using Ash's crown swager.

Mr. LENNOX showed a pair of pliers for bending up the copper strip when obtaining a model for crowns, prepared according to his method, and also his caps for obtaining impressions of obliquely placed molars.

Mr. **RHODES** demonstrated the use of his appliances for taking impressions, &c., of roots which are to be crowned.

Mr. **KNOWLES** showed his crown swager.

Mr. **BEAUCHAMP** gave an interesting demonstration of the method of tempering small instruments.

There was a large exhibit of microscopical preparations arranged by Messrs. Baker, Hopewell Smith and S. Rose. Messrs. C. Ash & Sons and the Dental Manufacturing Company showed some of their latest appliances and materials.

Mr. Chas. West, the President, kindly offered members and their friends light refreshments.

Western Counties Branch.

THE Annual Meeting of the Western Branch was held at the Reading Room, Mitchell Street, Weymouth, on Friday, July 21.

A meeting of the Council was held at 9.30 a.m. Present:—Mr. W. A. Hunt (President), Mr. John Laws (President-elect), also Messrs. H. B. Mason, Dudley, Sanders, Yates, Gartrell, Helyar, E. Apperly, Mallet, Genge, Kendrick, E. Goodman, C. A. Hayman and T. A. Goard.

The minutes of the last meeting were read and adopted. It was decided to suggest that the General Meeting of Members be held at Cheltenham in January. It was decided to hold the next Council Meeting at Weston-super-Mare on Saturday, October 7.

A general meeting of members was held at half-past ten. Mr. W. A. **HUNT**, President, was in the chair. There were also present Mr. John Laws (President-elect), Messrs. Helyar, C. A. Hayman, Kendrick, E. Goodman, Dudley, H. B. Mason, Sanders, Haycroft, W. J. Goodman, W. H. Goodman, Parsons, Royal, Genge, Gartrell, H. Mallet, Miller, T. D. Goodman, Yates, Gay, Carter, Thomson, Wallis, C. S. Prideaux, W. de C. Prideaux and T. A. Goard.

The **HON. SECRETARY** read letters of apology from Messrs. Browne-Mason, Richardson and Tuchett.

The **PRESIDENT** said he was sorry to say that their worthy Treasurer (Mr. J. T. Browne-Mason, of Exeter), was unable to be with them that day. The Hon. Secretary would read the Treasurer's report.

The **HON. SECRETARY** read the report of the Hon. Treasurer. He announced he had a balance in hand of £24 5s. 8d.

The **PRESIDENT** moved that the Treasurer's report be adopted. Whereas they begun the year with a small balance, this year their Treasurer had got £24 5s. 8d. He thought that might be considered very satisfactory.

Mr. **GANGE** (Clifton) seconded the resolution, and the report was adopted.

Mr. T. **ARTHUR GOARD**, the Hon. Secretary, read his report as follows:—

The Council present, with much pleasure, their report for the past year to the Annual Meeting of members.

Last year the Annual Meeting was held at Bath in conjunction with the meeting of the whole Association, the latter being entertained by the Western Branch. Consequently only the necessary business was done, Mr. Hunt, as the President of the Association and Branch, giving his Presidential Address at the Annual Meeting of the Association.

An ordinary meeting of the Council was held at Lynton on Saturday, September 17, 1898. In addition to the usual business it was resolved to send a circular to the local branches of the British Medical Association, calling attention to the resolution passed by many branches in the country, "that it is unprofessional, and of the nature of covering, for medical men to administer anæsthetics for unregistered men practising dentistry."

A special meeting of the Council was held at Bristol, on January 21, 1899, called on the requisition of eight members.

The following resolution was passed: that "We, as the Council, do recommend to the Annual Meeting of Members that a general meeting of members be held on the last Saturday in January or the first in February at some large centre within the area of the Branch. The centre to be decided upon at the preceding Annual Meeting."

The Spring Meeting of the Council was held at Yeovil on Saturday, April 29.

It was announced that the circulars sent to the various branches of the British Medical Association had received favourable consideration. It was resolved to send one guinea as a donation from the Branch to the South Wales and Monmouthshire Branch.

It was also resolved that the list of members be circulated after the Annual Meeting.

It is with very great regret that the Council report the loss that the Branch has sustained through the death of Mr. G. C. McAdam of Hereford. He had been associated with the Branch from its earliest days, had filled the Presidential chair and was a Member of the Council at the time of his death. His unfailing courtesy and marked geniality will be much missed by all his fellow members and colleagues.

During the past year five members have resigned, ten have been elected, and the number now on the list is eighty-eight.

The Treasurer reports that he has a balance in hand of £24 5s. 8d.

The five retiring members of the Council are Messrs. Harding, W. Helyar, Hunt, and Laws. The Council nominate for election, Messrs. Harding, Gartrell, Cornelius, W. H. Goodman, and Hatton.

The Council nominate Mr. E. Apperly as the representative of the Branch on the Representative Board.

The Council suggests that the next Annual Meeting be held at Clifton, Bristol, and nominate Mr. Helyar, of that city, as President-elect.

Messrs. Carden, W. de C. Prideaux, Palk, Brittan, and Wellings, were elected members of the Association and Branch.

Mr. HAYMAN (Clifton), in moving the adoption of the report, said he should be very glad to welcome the Association in Clifton next year. If he could do anything to help the Association the members might rely upon his giving them his best services.

Mr. KENDRICK (Taunton) seconded the resolution.

The PRESIDENT said he might explain that many members were anxious that the Branch should meet more than once a year. The Council assembled three times a year, and afterwards held a very informal meeting of members. The Council thought it would be wise that they should meet in a body twice instead of once in the year. The Southern Counties Branch and other Branches met four times in the year. The membership of the Western Branch had got larger, and they had added ten during the past year. The Council recommended that a meeting of this Branch should be held at the end of January or the beginning of February in some large and important centre.

The report was adopted.

Mr. **HELYAR** said he was very much obliged to the members for nominating him as President. He would like to say that he should try and do all he could for the Association, but success would depend upon themselves.

The **PRESIDENT** said they had lost a dear, an old, and a valued member. He referred to Mr. McAdam. He was a man appreciated by us all. As a Council we have sent our sympathy to the widow, yet it was thought that a letter should be drafted by the Secretary on behalf of the Association. He proposed that that be done.

Mr. **MALLET** (Plymouth) seconded the resolution. He thought there was no one whom they would miss so much as their dear friend McAdam. He was one of the original members, and was most frequent in his attendance. He was almost certain that, as far as he could remember, he never knew him absent. He was sure they would all miss him very much indeed.

The resolution was agreed to in silence.

The **PRESIDENT** said Colonel Rogers was anxious they should go to Cheltenham, and he had promised to look after their material comfort. He (the President) moved that a meeting be held at Cheltenham at the end of January or the beginning of February. He supposed it would be better to leave the date to the Council, who would probably meet in October, when they could discuss the matter and see what was best suited for the general convenience.

Mr. H. B. **MASON** (Exeter) seconded the resolution, which was agreed to.

The **PRESIDENT** then delivered his valedictory address. What little he had to say he said at Ipswich, where he gave a sketch of the political, social and scientific progress that the British Dental Association had made during the past year. He looked with hopefulness to the future. He also briefly touched upon legislation, and the possibly good effects which might arise from the legislative proposals that they had now on hand. He did not wish to go over all the points again, because he had very little fresh to bring forward, on account of the very little work that the branch had done. "Our work as a branch has been absorbed by our receiving the great Association." In looking back to that fact he must publicly thank them, one and all, for the very kind way in which they had backed up his efforts, and for their unfailing kindness. He would also refer to one portion of the legislation that interested them so much, and that was the Companies Act. They knew that many of their leaders in London approached the Lord Chancellor, and the Lord Chancellor had himself drafted a Bill which was to come before the House of Lords, which would, if carried, make it impossible, without a heavy penalty, for a bogus company to be formed, and to carry on proceedings which would not be allowed in an individual. The Lord Chancellor had drafted a very short and simple bill to make that in the future impossible. In looking at the newspaper two days ago, he (the President) noticed that among the bills Mr. Balfour said would be obliged to stand over to the next Session of Parliament was the Companies Bill. Meanwhile their representatives in London had drafted an excellent circular descriptive of the need of this Bill, and the details of the measure, which any of them, by applying to the Secretary, might get a copy of. It would be exceedingly useful to any man who had influence with the member for the constituency to which he belonged. "We have great influence with some of our members of Parliament, especially when they are in the dentist's chair." In retiring, he felt extremely proud to be able to say that his old friend, Mr. John Laws, of Weymouth, would succeed him in the chair.

Mr. GENGE (Clifton) moved that the best thanks of the Association be tendered to the President for the very able way in which he had filled the chair during the past year.

Mr. HELYAR (Bristol), in seconding the resolution, said the year had been one requiring exceptional strength for the Presidency, and in Mr. Hunt they had found by experience the right man.

The resolution was agreed to.

Mr. J. LAWS, the President-elect, was then inducted into the chair, and delivered his address.[1]

Mr. MALLET (Plymouth) proposed a vote of thanks to the President for his address.

Mr. HUNT (Yeovil) seconded the vote, which was carried.

Mr. G. THOMSON read a paper on "The Treatment of the Dental Pulp."[1]

Mr. W. H. GOODMAN (Exeter) submitted "A Curious Case of Hemorrhage after Tooth Extraction."[1] Before reading his paper Mr. Goodman said they had no doubt seen in the papers some accounts of a preparation called carmeline. He had with him, and produced, a case of full number made up as a specimen. It seemed to him a solution of something in ether. He thought it was a celluloid. This carmeline certainly had a more natural appearance than vulcanite. As to the wear of it, he could not tell them anything. He had not actually tried it in practice. Mr. Goodman then read his paper.

The PRESIDENT said Mr. E. Goodman, of Taunton, had placed in his hand a specimen of early English work—the natural teeth fitted into the plate by means of pins. The specimen would be handed round.

Mr. T. TAYLOR GENGE read a paper on "Prosthesis of the Inferior Maxilla."[1]

Mr. W. A. HUNT showed "Celluloid working and Apparatus."

Mr. THOMSON said they were very much obliged to Mr. Hunt. He certainly liked the way in which the apparatus had been worked.

Mr. HUNT, in reply to a question, said he did not regard celluloid as of everlasting wear, nor did they want a material which would last for ever.

Mr. SAUNDERS (Barnstaple) said he had watched the process with great interest, and he had studied it since 1878. He was greatly in favour of celluloid. As to the lasting power of celluloid he could give one instance of where it had resisted the action of spirits, for he used it in the case of one patient—a lady who certainly took two or three glasses a day, and who was supplied by him in 1881. He was a great believer in celluloid if it were only worked properly. Unfortunately, it was far too difficult for the ordinary mechanical dentist to work. He believed that if they could give more time to the working of celluloid they would derive great benefit from it. He certainly thought it was better for a full case than part of one.

Mr. HELYAR said it was only yesterday that he saw a set that he put in at least ten years ago as perfect now as it was then.

The PRESIDENT said they were all grateful to Mr. Hunt for his demonstration.

Mr. T. A. GOARD moved a vote of thanks to the readers of papers. If not a large meeting, he thought it had been a most successful one.

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[1] To be published as an Original Communication.

The PRESIDENT seconded the vote, and said he had enjoyed the papers very much.

The resolution was agreed to.

The members were entertained at luncheon by the President at the Royal Hotel.

At half-past three in the afternoon there were demonstrations at 2, Gloucester Row. Mr. S. G. Yates showed Solila gold filling. Mr. J. H. Gartrell exemplified some further modifications in slot swaging apparatus and methods. There was an exhibition of vulcanisers of various makes and models, and the Dental Manufacturing Co. made an exhibit of their latest chair and other novelties.

The annual dinner was held at half-past seven at the Royal Hotel. The President (Mr. J. Laws) occupied the chair, and there was a large and distinguished company.

Letters of apology were announced from the Mayor, the Rector, Dr. Weldon, Canon Stevenson, the Archdeacon of Dorset, the two naval officers and the two military officers.

The PRESIDENT, after dinner, proposed "The Queen" and the toast was honoured by the singing of a verse of the National Anthem.

Mr. DUDLEY proposed "The Army, Navy and Reserve Forces," and the toast was acknowledged by Captain RICKARDS, Captain HOWARD BOWEN and Captain GROVES.

Mr. APPERLEY gave "The Clergy and other Denominations." The Rev. Dr. MILLER made a happy reply showing the connection between tuck shops and toothache, and how he prevented that malady among his boys at school. The Rev. A. S. COOK also responded.

Dr. SIMPSON submitted "The British Dental Association." He took it that the British Dental Association stood in very much the same relation to the dental profession as the British Medical Association stood to "our own." He said "our own" somewhat advisedly, because he could not help thinking that in these days of advanced specialism, when there are specialists all round, the dental profession should not be considered as a separate and distinct profession. He could not help thinking that, instead of proposing "The British Dental Association," he should like to get up and propose "Our noble selves." They were all in the same profession. He saw that they had all passed their period of pupilage, they had all gone through the necessary work in the hospitals, they had all passed their examinations, and they had all succeeded in practice. He and his brother medical men had done the same. The calling of the dentist was to ameliorate human suffering. What was the calling of the medical man? He did not think it was very far from the same thing. They did their portion to alleviate human suffering. Seeing that the British Medical Association was their trades-union he did not see why they could not all be embraced under one Association, and that they recognised the dentists in the same way as they recognised the doctors, the midwives, and all the rest. When he spoke of midwives he spoke of male midwives only. He anticipated that the Journal of the Dental Association was as useful to the dentist as the *Medical Journal* was to the medical man. Medical journals were of immediate use to the medical profession, because they were able to learn from them not only what was going on in their own country, but what progress was being made in countries outside their own. He had no doubt that such was the case with the Dental Journal. He gave them with all sincerity his best wishes for the success and prosperity of the British Dental Association.

Mr. HUNT, in the course of his reply, said that there was a time in the early stage of their history when the medical profession gave the dentist no countenance and no encouragement, or at any rate, to the smallest degree. But the cold twilight had passed away, and they had now emerged into the sunshine of prosperity. Probably their finest motto to-day was "Excelsior," and it would be their motto, he hoped, for many years to come.

Mr. KENDRICK also responded. He did not think he had ever heard that toast proposed so sympathetically, and so much in harmony with the state of things as they existed. He felt especially grateful to Dr. Simpson, and begged to thank him for the way in which he had proposed the toast, and the company for the way in which they had received it.

Mr. FERNALD (in the absence of Mr. Thomson) proposed "The Medical Profession." The medical profession had been sensible to recognise the dentists, since they had proved themselves worthy of recognition. He hoped they were working in unison, and for the one great cause of alleviating human suffering.

Dr. LUSH, in reply, said it would be unbecoming on his part were he to laud the noble profession to which he had the honour to belong, still more so were he to detract from its merits. "Deeds, not words," should be their motto. As medicine included surgery he thought surgery included dentistry. It had occurred to him, before Dr. Simpson put it to them so well, that they could hardly separate dentistry from the medical profession.

Mr. DU BOULAY also replied.

Other toasts were: "Prosperity to Weymouth," proposed by Mr. HELYAR, and acknowledged by Mr. OAKLEY and Mr. SHERRIN; "Our Guests," proposed by Mr. W. B. MASON, responded to by Mr. CARTER and Mr. WETHERALL; "The President," given by Mr. YATES.

On Saturday an excursion to Sherborne was enjoyed. The old Castle and grounds were thrown open through the kindness of J. J. K. Wingfield Digby, Esq. The Abbey was also visited by the members.

Reviews and Notices of Books.

THE HYGIENE OF THE MOUTH. A Guide to the Prevention and Control of Dental Diseases. By R. DENISON PEDLEY, F.R.C.S.Ed., L.D.S.Eng., Dental Surgeon to the Evelina Hospital for Sick Children, Southwark, London. With numerous illustrations. *London:* J. P. Segg & Co., 289 and 291, Regent Street, W. *America:* The S. S. White Dental Manufacturing Co., Chestnut Street, Philadelphia, Pa.

Mr. Denison Pedley's book is no more and no less than what it purports to be, viz., a *guide* to the prevention and control of dental disease, and as such it fulfils its purpose efficiently. So much has been already written on the same subject that we can scarcely expect to find anything new, or anything strikingly original in a small work of this nature, but the fact of its coming at a time when the work of the School Dentists Society is becoming more and more widely recognised and appreciated—gives it an additional interest. The first chapter, which deals with the hygiene of the mouth in children, might be read with great advantage by parents and school teachers, nurses—in fact, all who have the care of children; the tables given in this chapter bring very forcibly to one's mind the awful limits to which dental disease is permitted to extend unchecked among the children of the poorer classes, simply as the result of ignorance. The second chapter would prove profitable reading to a large proportion of the general public who are so ready to avail themselves of the services of the advertising quack, as it would give them some idea of the evil results not only of neglect of the teeth, but of their improper treatment; this chapter is devoted to the hygiene of the mouth in adults, and gives accounts of a number of cases of general ill-health consequent on imperfect dentition, and in which proper dental treatment was productive of happy results. The illustrations (some of which have the appearance of old friends) are an assistance to the text.

Miscellanea.

Benevolent Fund.

The following contributions have been received during July:—

New Subscriptions.			
Clarence A. Keall, 31, Clarendon Road, Holland Park, W.	£1	1	0
P. W. Greetham, 40, Beckenham Road, Penge	1	1	0
Mrs. Greetham, 40, Beckenham Road, Penge	0	10	6
H. R. F. Brooks, 37, High Street, Banbury	1	1	0
W. Matthews, 60, Rodney Street, Liverpool (subscription increased to)	3	3	0
Donations and Collections.			
Southern Counties Branch of B.D.A., Collection at Brighton, June 24, 1899 (per F. V. Richardson) ...	5	5	0
Messieurs Sauvez, J. Choquet, and J. Duncombe, French Delegates of the Paris International Dental Congress Committee of Organisation (per W. B. Paterson) ...	2	8	0
Western Counties Branch of B.D.A., Collection at Weymouth, July 21, 1899 (per Edwin Goodman)... ...	3	14	6
"A Weymouth Friend" (per John Laws, Esq.)	0	10	6
E. Preedy, 1, Hanover Square, W....	1	1	0

Dental Hospital of London.

The Annual Conversazione in connection with this Institution was held at the Galleries of the Royal Institute of Painters in Water Colours, Piccadilly, on Wednesday evening, July 19. Sir Richard Douglas Powell, Bart., M.D., occupied the chair, and distributed the prizes to the successful students of the year. In spite of the tremendous heat there was a very fair attendance, between three or four hundred guests being welcomed by the Dean and staff. Mr. Morton Smale, the Dean, in his address, said that his first duty was to express, on behalf of himself and his colleagues, the pleasure it gave them to publicly welcome Sir Richard Douglas Powell as Consulting Physician to the hospital, and to assure him of their appreciation of the honour which he did them in occupying the position. He also had great pleasure in greeting the visitors, especially the ladies, who came to applaud the successful efforts of their sons and brothers, cousins and nephews, and perhaps even their uncles. In commenting on the changes which had taken place in the staff of the hospital, he referred with regret to the retirement of Mr. Storer Bennett from the post of Lecturer on Dental Surgery; he was glad to mention the name of Mr. William Hern as his successor. Mr. Hern's record was sufficiently well known to every one. It was also a great satisfaction to have secured the services of Mr. Hopewell Smith as Demonstrator of Histology. Mr. Hopewell Smith had resigned another appointment in order to return to his *alma mater*, and as he was one of the greatest authorities on dental histology in Europe, the London Dental Hospital was proud to add his name to their list. While they were able to attract such men as their chairman, Sir Richard Douglas Powell, Mr. Tomes, Mr. Hern and Mr. Hopewell Smith, they could afford to ignore such criticism as they had received at the recent meeting of the British Dental Association at Ipswich. The record of the hospital continued good, and they were still able to attract students, not only of their own nationality but foreigners as well, there being at the present time several Italian doctors studying dental surgery at the hospital. Their pass list at the Royal College of Surgeons continued to improve, and the students from Leicester Square were still able to carry away the prizes from the general hospitals. "If this should be my last utterance from this position," continued Mr. Smale, "may I say to students, be loyal to the L.D.S. Let it be made as difficult as you please—and the College of Surgeons will, I am sure, grant your requests in this particular—but let it be the only dental diploma; let us avoid the pitfalls that handicap the medical profession in their multiplicity of diplomas."

In speaking of the new hospital, he exhorted all present to show their sympathy—and each to bring a brother to show his—by contributing towards the £2,000 which had to be found by August 12.

There had been no dinner, no laying of foundation stones, and no bazaar; their trust was in the loyalty and generosity of the friends of the hospital to provide the wherewithal to carry on the work. Each person present could easily contribute ten guineas, and that would place them out of their difficulties for the present. The public also might acquit themselves of their responsibilities in this direction more than they had done in the past. But this was not a begging evening, so he would now ask the President to distribute the prizes.

The following were the prizes awarded :—

Saunders Scholarship: Mr. J. Thornton Carter. Ashs' Prize: Mr. J. Thornton Carter.

CLASS PRIZES.

Metallurgy.—First Prize: Mr. W. J. Duncalf. Second Prize: Mr. J. T. Carter. Certificates of Honour: Mr. A. Rice, Mr. W. White.

Dental Mechanics.—First Prize: Mr. A. Rice. Second Prize: Mr. W. J Duncalf. Certificates of Honour: Mr. W. B. Blandy, Mr. A. G. Heydon, Mr. J. T. Carter.

Practical Dental Surgery.—First Prize: Mr. E. Rhodes. Second Prize: Mr. W. J. Duncalf. Certificates of Honour: Mr. J. T. Carter, Mr. A. Rice.

Dental Anatomy.—First Prize: Mr. J. T. Carter. Second Prize: Mr. G. C. Sawday. Certificates of Honour: Mr. W. J. Duncalf, Mr. R. H. Heath, Mr. M. Bartlett, Mr. T. Rice, Mr. W. J. Law, Mr. P. Andrew, Mr. W. Kittow.

Dental Surgery.—First Prize: Mr. G. C. Sawday. Second Prize: Mr. H. G. Perkins. Certificates of Honour: Mr. W. B. Blandy, Mr. R. H. Heath, Mr. H. P. Fitch, Mr. L. C. Broughton-Head.

Sir Richard Douglas Powell, in addressing the students, said that the hospital had arrived at a great state of perfection both as regarded its teaching and its charitable work. This was due to the efforts of the staff for the past forty years. When the new building was ready and there was more room, the Dental Hospital of London would, he believed, be second to none in the world, and he felt sure that those students to whom he had the pleasure of distributing prizes would continue the good work of their predecessors. The perfection of dental surgery required three things: perfect mechanism, manual dexterity and a perfect knowledge of antiseptics; and he learnt that the study of mechanical dentistry alone required a period of three years to be expended upon it. He thought this was not a day too much. He suggested that manual dexterity might be improved by means of various amusements, such as fencing and music. The game of billiards was one which was certain to increase one's dexterity of manipulation, but it was unfortunately associated with late hours and smoking, both of which were antagonistic to a delicate and accurate touch and a steady eye. In speaking of the value of anæsthetics, he said that when people who thought they had weak hearts asked him if it would be safe for them to take gas, he always replied that the anæsthesia would be less injurious than the shock which the operation would give them without it.

Mr. Tomes proposed a vote of thanks to the chairman for his kindness in coming there to distribute the prizes, and also in accepting the post of Consulting Physician to the hospital, paying a graceful tribute to his qualities as a sportsman as well as a conscientious hard worker.

Mr. Leonard Matheson, in seconding, said the whole staff greatly appreciated the addition of Sir Richard's name to the list of distinguished men associated with the hospital.

An enjoyable concert was given during the evening by Mr. Herbert Schartau, assisted by Miss Jeanie Rankin, Miss Annie McBride, Mr. Frank Tebbutt, Mr. Percy Honri and Mr. Walter Churcher.

Royal College of Surgeons of Edinburgh.

During the July examination the following gentlemen passed the First Professional Examination for the Licence in Dental Surgery :—Adam Ernest Miller (Wilkieston), with distinction; John Robert Carr (Newcastle-on-Tyne), with distinction; Ernest William Keatinge (Rhyl); Martin Bell (Newcastle-on-Tyne); Charles Leonard Webb Fleming (Barbados); Harry Murray (Edinburgh); James Thomas Omit (Edinburgh): James Murray Wilson (Joppa); Alexander Jarvis (Edinburgh); and Harold Macrae Shaw (Liverpool). The following gentlemen passed the Final Examination, and were admitted L.D.S. Edinburgh :—William Orr Gray (Rutherglen), with honours; Andrew William Kinnear Brumwell (Newcastle-on-Tyne); Alfred Ebenezer Park (Edinburgh); Henry Cooke Watson (County Westmeath); Frank Kolesar (Liverpool); Alfred Jameson (Northumberland); Thomas Herbert Hillis (British Guiana); Alexander Lake Melrose (Edinburgh); Frank Adye Curran (India); and Benjamin Mark Martin (Southampton).

Edinburgh Dental Hospital and School.

The annual distribution of prizes took place on July 19 at the Institution, Chambers Street. The Dean (Mr. B. MacLeod) reported an increase in efficiency and numbers for the twenty-first session, which had just closed. Twenty-five students had been enrolled, 5 of whom took the mechanical training in the laboratory of the hospital. Last year, at the corresponding date, there were 50 students, 21 of whom had since taken the L.D.S.Edin.; 8,260 fillings had been inserted during the year, as against 7,392 for the previous year, and 257 dental appliances had been made. There had been a regular attendance, and a higher amount of clinical work had been done by each student than in previous years. He referred to the extension of the school, and the gift by the late Mr. Andrew Wilson of his museum of comparative anatomy. The prizes and certificates were presented to the successful students by Bailie Pollard, who spoke of the high level which dentistry had reached in Edinburgh, and said that the Town Council regarded the Dental School as part of the Medical School of Edinburgh. People did not at first look upon dentistry as connected with public health, but the care of the teeth was an important factor in the preservation of health and the prolongation of life; there were parts of medicine whose influence on the public health was less than that of dentistry.

Choosing a Wife for her Teeth.

There is apparently another use for teeth which we do not find in our text books. *Answers* is responsible for the following:—

" One of the most curious and interesting of bridal customs is the practice of the Eskimos of choosing a bride not for her face, her figure, or her fortune, but for the excellence and strength of her teeth.

" Up in the Polar circle, where a man's blood freezes and parts of him drop off at the touch of the icy blast, it is a difficult matter to keep the untanned skins which answer the purpose of bedding and clothing from hardening and cracking. There is only one process known to the Eskimo—that of chewing. It is necessary to perform this operation every two or three months, and it is part of the wife's duties.

" An Eskimo who is the father of five or six strong, healthy girls whose teeth are perfect is accounted a wealthy man. When his daughters grow to a marriageable age there is great competition for them among the youths of the village. One bids against another for them, offering more and more dogs till he secures his future helpmate. The lady herself is not asked whether she has any preference. It is taken for granted that she will derive as much pleasure in chewing for one man as for another. In short, marriage among the Eskimos is merely a business transaction whereby a man gets a slave very cheaply."

Appointments.

Frederick Lonnon, M.R.C.S., L.R.C.P., L.D.S.Eng., to be Dental Surgeon to the " Gordon Boys' Home."

R. McKay, M.R.C.S., L.R.C.P., L.D.S.Eng., to be Demonstrator of Dental Surgery at the Dental Hospital of London, Leicester Square.

Annotations.

"CHARITY begins at home," but happily it does not always end there. Our French visitors, Dr. Sauvez, M. Choquet, and M. Duncombe, brought their charity with them to England, and exercised it on these shores by generously contributing to the Benevolent Fund of the British Dental Association. We take this opportunity of expressing to them our grateful appreciation, and that of the Association generally.

THE following extracts from the report on the General Hospital, Launceston, presented to the Parliament of Tasmania, shows us that our professional brethren in the Colonies do not let the grass grow under their feet in the matter of public usefulness. The public are scarcely aware of the extent to which the gratuitous services of dentists are called into requisition, and possibly these accounts of hospital work, done so many thousands of miles away, will prove interesting news even to many of our members.

"In the Dental Department the work continues to progress satisfactorily, and there has been a steady growth in the number of cases treated year by year. From the Report for the year it will be seen that there is a large increase over previous years, and more gratifying still is the marked increase in the proportion of stopping cases and operations for the saving of the teeth instead of their extraction. The work of conservative dental surgery, besides yielding the greatest benefit to the patients, has opened up a useful field of practice to the students, who, under the direction of the Honorary Officers, are permitted to undertake their treatment.

"Besides the ordinary Hospital patients the children of the Girls' Industrial School have attended for examination and treatment.

"During the year Ward 5 was specially equipped for the treatment of dental cases, and is now used as the Dental Department. This change not only facilitates the work of dentistry, but leaves the operating theatre free for surgical cases alone.

"In the School of Dentistry the usual clinical instruction has been given. Courses of Lectures have been delivered by the Surgeon-Superintendent and Mr. A. Lucadou-Wells, and demonstrations in Anatomy given by the Surgeon-Superintendent and House Surgeon.

"A gratifying testimony to the usefulness of the work done was the receipt of a communication from Dr. Drake, late Surgeon-Superintendent, in which he desires the Board of Management to place on record his appreciation of the services rendered to the Hospital by the Honorary Dental Staff during his term of office.

"*Report of Cases treated in the Dental Department and School of Dentistry during the Year* 1898.

Extractions	957
Fillings (various)	155
Scaling	73
Irregularities of the Teeth of Children	45
Mechanical Appliances supplied	15
Operation under Anæsthetics	35
Miscellaneous Operations, including extirpation of dental pulp, treatment of nerve canals, removal of morbid growths, treatment of alveolar abscess, &c.	297
Advice Cases and Prescribing	208
	1785
Girls' Industrial School, Cases attended	104
Total	1889

"J. RAMSAY, M.B., CH.B., *Surgeon-Superintendent.*"

Dr. JOSEPH WALKER has served the London Dental Hospital and School in several capacities; in its early days he was Assistant Surgeon, and many a dentist must remember the help he received before presenting himself for the L.D.S. in the days when it was not compulsory. Subsequently he was Lecturer on Dental Mechanics for some years, and his services in that position must be well remembered by those who attended those lectures. Now he is Treasurer of the Hospital and devotes much time and money to promoting the success of the new building. To add to these services he has now founded and endowed an entrance Scholarship which is certainly not the least of his kindnesses, and is not only a gift to the School but also a benefit to those intending to enter the profession. The subjects for the Scholarship are those that dental students should have attended before entering at a School. Dr. Walker hopes that this Scholarship may be an incentive to the successful competitor to take some additional qualifications.

We believe the School has acknowledged Dr. Walker's gift in suitable terms, and are sure the whole profession will accord to him an acknowledgment for his generosity.

We are given to understand that the standard of the Chemistry and Physics Examination in connection with the Scholarship will be similar to that for the conjoint examinations in the same subjects; other particulars may be found on page xxix. of our advertisements.

WE have just received a copy of the second edition (revised and enlarged) of Mr. Hopewell Smith's "Dental Microscopy." The book has arrived too late for us to give more than a rapid look through it before going to press, but we hope to give a fuller notice of it next month. Suffice it to say here, that from the cursory glance we have been able to give it, the work appears to be all that we expected, and that is saying a good deal. It is illustrated with a coloured frontispiece and numerous other original drawings by the author.

Books and Publications Received.

Dental Medicine: A Manual of Dental Materia Medica and Therapeutics. By Ferdinand J. S. Gorgas, A.M., M.D., D.D.S., Editor of "Harris' Principles and Practice of Dentistry," and "Harris' Dictionary of Medical Terminology and Dental Surgery;" Professor of the Principles of Dental Science, Oral Surgery, &c., in the University of Maryland, Baltimore. Sixth Edition, revised and enlarged. *London:* J. and A. Churchill, 7, Great Marlborough Street.

Interstitial Gingivitis, or So-called Pyorrhœa Alveolaris. By Eugene S. Talbot, M.D., D.D.S., Professor of Dental and Oral Surgery, North-Western University, Woman's Medical School; Hon. President of the Dental Section of the 10th International Medical Congress, Berlin, 1890, &c.; Author of "The Irregularities of the Teeth and their Treatment;" "Chart of Typical Forms of Constitutional Irregularities of the Teeth;" "The Etiology of Osseous Deformities of the Head, Face, Jaws and Teeth;" "Degeneracy, its Causes, Signs, and Results, &c. With 73 illustrations. *Philadelphia:* The S. S. White Dental Manufacturing Company.

Der Anatomische Ban des Unterkiefers als Grundlage der Extractionsmechanik. Von Dr. Rudolf Loos, Assistent am Zahnärztlichen Institut der K. K. Universität, Wien. Mit 5 Tafeln und 48 Figuren im texte. *Wien:* Alfred Hölder, K. U. K. Hof- und Universitats- Buchhandler, 1, Rothenthurmstrasse, 15.

Natural Ventilation. Reprinted from *The Building News*, May 26, 1899.

Transactions of the National Dental Association (U.S.A.), Transactions of the Medical Society of London, Pharmaceutical Journal, Information, Dental Review, Texas Dental Journal, Revista Odontologica, Le Mois Medico-chirurgical, Dublin Journal of Medical Science, Zeitschrift für Zahntechnik, Δηsμos, Medical Brief, Vierteljahrsschrift für Zahnheilkunde, Archives Nationales de Stomatologie et d'Art Dentaire, La Revue de Stomatologie, Ash's Quarterly Circular, Transactions of the Odontological Society of Great Britain.

Note.—ANONYMOUS Letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 26, Wimpole Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

Subscriptions to the Benevolent Fund to the Treasurer, A. J. Woodhouse, Esq., 1, Hanover Square, W.

All contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 26, Wimpole Street, W.

Journal of the British Dental Association

No. 9. SEPTEMBER 15, 1899. VOL. XX.

Original Communications.

Presidential Address.

DELIVERED AT THE ANNUAL MEETING OF THE WESTERN COUNTIES BRANCH, JULY 21, 1899.

BY J. LAWS, L.D.S.I.

GENTLEMEN,—The first duty and privilege of a newly-elected President is to express his gratitude to the members of the Association for the honour they have conferred upon him, and the confidence they place in him by deeming him worthy to occupy the highest position the Branch has to offer, and to preside over its meetings and deliberations for the coming year. In saying this I express my gratitude with very mingled feelings and many hesitations; I would not for a moment wish anyone of you to imagine I undervalue the honour, or the confidence you have placed in me; I thank you for it sincerely, but I have had very considerable misgivings and hesitations lest your generous confidence may have been misplaced, and that at the end of my tenure of office I may have disappointed you. I can only promise you very faithfully that I will do my best. I am not the man to shirk either work or duty when the call comes, and if you are willing to bear with my shortcomings and be loyal, I assure you my single aim is to pilot your ship safely throughout another year's voyage. I have been led to say this because of the peculiar position in which I stand to-day—I refer to my predecessor, Mr. Hunt, who has just laid down the reins of office which you have asked me to take up. I did not realise it at first, but when I came to think, I *did* realise, and that very seriously, that you have asked me to follow, not only the Branch President, but the president of Great Britain and Ireland—in a word, the king of the profession—who has presided over and guided the whole British Dental Association, and it has proved, I believe, the most successful and prosperous year the Association has ever known. Therefore again, gentlemen, I feel it necessary to ask for all the forbearance and help you can give me, that I may successfully maintain the dignity of the Chair and the welfare of our Branch.

As our annual gatherings come round we naturally scan our Roll Call, and it is with sad hearts to-day that we miss the name of one of our most devoted and regular attendants, and one whom we all loved and honoured—George Macadam. Personally I feel I have lost a true and dear friend, one with whom I was always at home. Our Association has lost a man who was ever true to its highest interests and whose discretion and guidance will be much missed—a man we could ill spare; and the profession has lost an honoured member, one whose practice was conducted alike with true ability and thorough integrity.

It is now my pleasant duty to give you all a most hearty welcome to the very ancient and loyal town of Weymouth. It is the first time in the history of our Branch that its choice has fallen upon Weymouth for its Annual Meeting. It is not the place of my birth, but it is the town of my adoption. Twenty-one years ago I came to reside here, and although I cannot by any means say that I have acquired wealth, I can most certainly say I have obtained health. I often feel this town is not anything like as well known as it ought to be for its healthiness and health-giving properties. Doubtless the fault lies partly with itself, for, being very ancient, it has been inclined to fall asleep and rest on the reputation it achieved when George III. was king. At last, however, it has been discovered *that* will not do, and now on all sides we are endeavouring to be abreast of the times, and I hope, gentlemen, that your short visit here will so enamour you of the place, its beauties, its resources, its healthiness and its general attractiveness, that you will return to your homes congratulating yourselves that in future it will be unnecessary to go abroad, for at last you have found "Naples" in England.

So much by way of preamble in welcoming you to Weymouth. And now, gentlemen, as it is your invariable rule that the first penalty you inflict upon a president is that he should occupy, profitably or unprofitably, the first half-hour of your time and his with an address, I must bend to my oars.

For the sake of convenience and order, it is my intention to divide my remarks under four headings—History, Polity, Theory, Practice. Also for the sake of conciseness I have divided my paper into these sections, and, as far as I am able to treat the subjects, the sections shall be microscopic.

Our history—by that I do not mean the history of the Western Counties Branch of the British Dental Association only, but the history of our profession—date it back as far as you like, personally, gentlemen, I am proud of it—is a history as yet written only in efforts, deeds, and actions, rather than in words or books. I have in my library a small book, published twenty-two years ago, which attempted to portray a small portion of our history. As far as it goes that book is well worthy of perusal, and sketches a small section of our history with perhaps a fairly unbiased mind. But I for one am longing for the man to arise who is equal and willing to write a full, fair, and honest history of the beginning, the rise, and the progress of dentistry and the dental profession. The very first sentence in the book I have referred to has always galled me; it is, " A retrospect of dentistry as it existed some thirty years ago in this country is by no means a pleasant study." Gentlemen, I beg to differ; and although those words were written nearly twenty-five years ago, I differed from the writer then. I am not ashamed of my ancestors; they, like us, were struggling in the dark after light; they, though often mistaken, laid a foundation on which we have been able to build, and I am no more inclined to feel ashamed of them than I hope the next generation will be of us when they think of us. They in their time acted according to their lights—it was a period of tallow candles, and rather dim—we in our time are only living and striving to act according to our lights; but let us not forget it is a time of electric light, and the greater the light the better should be the work accomplished.

Again, gentlemen, I should be glad to welcome a true historian amongst us, in order that justice should be done to the Provinces as well as to London in the action taken to place our profession where it stands to-day. I do not for a moment wish to detract anything from the credit justly due to our metropolitan brethren, but I cannot forget that the very first meeting held, the influence of which vibrated throughout the length and breadth of Great Britain and Ireland, and was undoubtedly the first cause of bringing about a radical reform amongst us, was called together by a circular which emanated from a quiet, unobtrusive, provincial dentist, Sidney Wormald, who died last year. That meeting was held as long ago as 1875, in Manchester. I was present at that meeting; it was there I first smelt the powder, and for some years was in the thick of the fight. And we had to fight, but in the end victory was gained, and metropolis and provinces joined their forces into one strong army and eventually obtained our Dental Act of Parliament.

That Act brought order out of chaos. Hitherto the dental profession had been composed of a heterogeneous multitude of individual items, isolated because unknown to each other; now it is a united body, and its union will always mean its strength. The British Dental Association is the happy and powerful result of that union, and if those who continue to remain outside the ranks of our Association will only swallow their quibbles and join us, the continued progress of the science, art, and ability of our profession will only be rivalled by the prosperity of our professional status.

It is unnecessary for me to recapitulate here our history during the last twenty-one years; it is perhaps known to most of you as well as to me. It has been a time of advance and of progress all along the line, not by leaps and bounds as the impetuosity of some would wish, but by patience and steady growth, and if we have not yet achieved all we could desire it is perhaps as well that it is so, for when there is nothing more to fight for, lethargy might creep in. But we may congratulate ourselves that we have plenty to fight for yet, and there is not likely to be much time for standing still or becoming lethargic. I will not here make any remark as to our success in having at last obtained direct representation upon the General Medical Council; that has been done already; I will only express a hope that the time is not far distant when we shall have not one direct representative but many, at any rate our fair proportion.

On the question of a "higher qualification" in dentistry I feel and always have felt very strongly; and I cannot disguise my keen regret at the result of the voting on that question at the Annual Meeting in Ipswich. I have always maintained, and I have never yet met with an argument that has convinced me otherwise, that a man may be a very much better physician and surgeon by also knowing something of dentistry and taking the L.D.S.; but the possession of the higher degrees in either medicine or surgery will never make a man a better dentist. Therefore I believe the time is fully ripe for the creation of a distinctive higher degree in dentistry pure and simple, which any who desires may endeavour to attain, instead of telling those of our L.D.S. who wish to walk up higher, that they can only do so by wasting time and money in acquiring knowledge which they cannot use, and is not the slightest value to them in the practice of dentistry. If we desire a higher qualification—and I believe a very large majority of our best provincial and unbiased minds do desire it—it must neither be a medical nor a surgical one, but a purely dental one, one which will stamp its possessor as having acquired the highest degree or qualification he can possibly obtain in his *own* profession, *i.e.*, the Profession of Dentistry, which he practices.

Gentlemen, I feel that is something worth fighting for still, and in spite of the adverse vote a few months ago, I hope the agitation to obtain it will not be allowed to drop. I feel so strongly on this subject, and have all my life held the same opinions, that I was almost inclined to make it the sole subject of this address, as I did not know it was to come up at Ipswich. However, I will leave it now by simply reminding you that our *clientèle*, the Public, are beginning to wake up, to take an interest in us as a professional body; they are keeping their eyes open, and beginning also to understand that the possession, by the man who practices dentistry, of the higher medical or surgical degrees, by no means makes the possessor a whit better dentist. I refer to this, as the remark, almost as I have given it, was made to me by one of our *Judges* last year—I refer to Judge Caillard, since dead.

But to leave this subject alone, gentlemen, in other fields there is much we still have to fight for and attain, and so long as there is work to do there is nothing like presenting a united front, by means of this Association, to accomplish it. We must influence and we must agitate. I believe there are in the present day few hospitals and infirmaries which have not now one or two dental surgeons on their official staff, but in many instances we have had to fight hard for that, and I regret to say that in some cases known to me our greatest opponents were the surgeons themselves. We have, however, conquered at last and won our rightful position in these institutions, but that is only the beginning of the fight; and our past successes should only nerve us for further conquests until we are properly and officially represented in every institution. I can never understand why, if it be necessary for every union to have its paid surgeon and chaplain, it should not also have its paid dentist; or again, if it be necessary for every naval vessel to carry its surgeon and its chaplain, it should not also be necessary for it to carry a fully qualified dentist. The same should apply to our Army, and to our prisons and asylums. We have in our own county here a large convict prison and a huge asylum, in both of which there are many hundreds of inhabitants, and though both institutions possess doctors and chaplains, not the slightest provision is made for proper dental supervision. These are just a few of the things which stand in need of speedy alteration; we have certainly accomplished much in the past, but our policy must be to stand together and work until these wrongs are righted and the dental needs of our sailors, our soldiers, our sadly afflicted ones, aye, and even of our convicts, are provided for and looked after as well as their medical or their spiritual wants.

Theory and practice are so closely associated that perhaps it will be better in my few remaining remarks if I unite the two. All men have theories of their own, and certainly the individual members of the dental profession have not fewer than most other men. But there is a great difference in the manner in which the theories we hold influence our lives. For instance, our theories to be of any use to us must be honestly worked out and practised, and by their results we must stand or fall. It is not by any means so with all men. Take the clergy, for instance; they may think out and hold as many theories as they like, but they have only to preach them, they are not called upon to practise them. So I hold that our theories have a very vital influence upon our lives, and are bound to influence our practice.

It is one thing to think out theories, it is quite another thing to be able to speak them or to be bold enough to conduct your practice upon them.

We are to-day, gentlemen, to listen to what I am sure will be a most interesting paper by our good friend, Mr. Thomson, on "The Treatment of Pulps." Of course I have not the remotest idea of the manner in which he will deal with the subject, therefore I cannot anticipate him. But I would merely here mention that one of the earliest questions I put to myself when I commenced practice was "*Why* do we kill pulps?" The exposure of a pulp, whether accidental or otherwise, is surely no warrant for its death. It has always struck me that both our teaching and our practice on this point leave very much to be desired yet. It should be considered as great a crime to willingly destroy a fairly healthy pulp as it is to extract a sound tooth. Why? Well, gentlemen, kill the pulp and what have you left? Only a carcase, and at the best and under the most favourable circumstances carcases are neither very pleasant nor very satisfactory things to deal with. I know one single instance does not prove very much, but I may here be permitted to mention the case of a man of my acquaintance; he is not a patient of mine nor ever likely to be, but in his mouth during the last twenty-five years four pulps have been killed by three different operators, and the teeth skilfully and carefully filled. But each of those four teeth had to be extracted within eighteen months of the death of the pulp. But that same man has in his mouth a tooth which over twenty-two years ago was aching very badly; the pulp was very gently treated, saved, capped, and a large crown cavity filled with amalgam, and after twenty-two years that tooth is still doing splendid service. It may be a fad of mine, but even though it takes much longer and more gentle treatment and manipulation, I prefer, instead of flying to the arsenic, to give every exposed pulp I come across a chance to regain health and save its life. I do not say I always succeed; far from it. I have had many failures and lost some impatient patients, but still I believe the theory is right and I intend to continue the practice.

This would lead me on to say how strongly we should support and approve the principle of having endowments in aid of dental research. As a rule too many of our young men are much too prone to be quite satisfied with what has been taught them by hard and fast rule at our schools and hospitals, and they rush into practice as quickly as possible, believing they know everything, and continuing to practice for ever in the same ruts. I know that after the anxieties and strain of the day's work of any ordinary dentist there is not much strength or inclination left to follow out hobbies and ideas by original research, or the formulating of statistics; indeed, we generally find that what spare time is left at the end of the day must be devoted to that awful bugbear of modern days, "Book-keeping."

There are amongst us, and yearly entering our ranks, however, many hard-thinking scientific men who might easily be persuaded for the love of the thing, and stimulated by at least a reasonable recompense, to devote a part of their lives to steady research and original experiment.

That the time is at hand for such a step I should think we are all agreed, gentlemen. Then let us put on a united front and endeavour in every way to assist those who are striving to obtain such a desideratum.

It would do more than anything else to help us towards the attainment of those goals we are all in search of, viz., the gradual, yet steady, disuse and neglect of our forceps until they get finally stowed away, only to reappear to future generations in museums as curiosities and labelled "rare specimens."

The ultimate production of that ideal filling which shall enable us to fill our patients' teeth with a material durable, preventive of further decay and not unsightly—a perfect filling material! Can such be produced? or must we for ever bow our heads to the wisdom exhibited in the choice of our forefathers? Must we continue to be able to do nothing better for our helpless patients than build up for them one of the most delicate organs of the system at an enormous expense of time, pain, health, and money, with a glaring yellow metal, making hideous what was before beautiful? Must a visit to the dentist be always dreaded more intensely than words can express because we continue to violate the first principles of conservative surgery by substituting for lost tissue a substance which, in place of being as nearly like the original as possible, has no affinity with anything contained in the human organism, but is totally foreign to it, viz., metal?

Again, gentlemen, endowments in aid of dental research would doubtless be one of the best means for obtaining the scientific knowledge which may one day be discovered whereby we may eventually be able to prevent caries. I dare not go further; I have occupied your valuable time already too long, and have just touched upon a problem—a thought—which I fear it may yet take the earnest work of many generations to solve and work out. As the highest work and aim of the physician is to *prevent* rather than *cure* disease, so also may we one day hope that the highest work and aim of the dentist shall be to endeavour to prevent caries *starting*, rather than slave to restore lost tissue with gold or substitute it with porcelain. Nowadays we talk glibly of noble professions and high aims—surely our profession with such an aim must rank high up among the noblest, and be worthy of all the endowments and encouragements that can be bestowed upon it.

The Treatment of the Dental Pulp.

READ AT THE ANNUAL MEETING OF THE WESTERN COUNTIES BRANCH, JULY 21, 1899.

By G. THOMSON, L.D.S.Eng.

I MAKE no apology for bringing before you a subject on which much has been said and written of late. The topic is not a new one, as may be learned from the numerous books on dental subjects which have been published since the end of the last century up to the present time.

In spite of the emphatic statements which are made by writers quite recently as to fixed modes of procedure and absence of failures, am still sceptical, and question whether any real and distinct advance has been made in the treatment of the dental pulp. Let me state at the outset that it must not be forgotten that teeth with pulps which require treatment have passed the border line of health, and fallen, from neglect or want of efficient filling, into a state of disease. It is owing to the ignorance of the public, and perhaps the want of teaching on the part of the dentist, that our patients arrive at this state of things.

It is a matter for sincere congratulation that with many of our best patients the treatment of pulps is never required. Let us not forget that the ideal of conservative dentistry is to plug carious cavities in such a way, and at such a time, that exposures of pulps and root treatment may never be required; and in this place and among the members of the Western Counties Branch I must refer to the apostle in the West of this ideal. Only last Wednesday, an elderly lady presented to my view, preserved in a box, an upper canine tooth, with a distal cavity in which was a perfect gold filling, which Sheffield inserted in 1830, the tooth having loosened and been extracted in 1891. That was a satisfactory piece of work, and thirty years in this case may be called permanent.

Please understand me when, by way of preface, I state it as my opinion that, compared *with a sound gold plug*, there is no mode of treating teeth, either by capping pulps or extirpating them and filling the roots, or by crowns, &c., that will stand the test of time and utility.

In a most admirable and exhaustive paper by Mr. Coysh, read at the last meeting but one of the Metropolitan Branch, he asked "Why should there be this exceeding reluctance to destroy a pulp?" And further on he boldly states that he does not hesitate to destroy a pulp, in order more effectually to get better retention of his filling.

I have watched with enthusiasm and interest the new and definite evolution of the principles underlying the treatment of dead teeth, and I confess that during the last five years my methods have become revolutionised and fixed, and the absolute certainty one feels in extirpating pulps and filling roots has added a new pleasure to my life.

Still I regard extirpation of the pulp as a leap in the dark.

A few of my reasons for this statement may suffice. I have mentioned the certainty of root filling, but that only applies to normal and accessible roots. Think in what proportion are the roots most inaccessible and most difficult to fill. What of the patients who themselves are nervous and unapproachable, and whose mouths are often in a sad state of neglect; of those who positively refuse our services if we will use the dental engine; and of the hundred and one little preliminary difficulties which beset us? There are central incisors with large apical foramina; lateral incisors with curved roots which no Donaldson bristle will penetrate; canines with double roots *ad infinitum;* the difficulties increasing as we go further back in the mouth, and which are quite familiar to us all. There is this very great difference in failure when capping or treating pulps, that to fail in saving a pulp is often only to arrive at the point where root filling begins. Whereas to fail in root filling is to completely fail and to sacrifice the tooth.

There is to my mind nothing which calls for more caution and wise judgment on the part of the dentist than his treatment of a tooth which has begun to ache. It is quite easy to apply arsenic at once and temporarily get rid of the patient and pocket the fee; the after treatment and the future history of the tooth does not greatly trouble the man who adopts such a line of treatment. I consider that the whole situation should be grasped by the dentist, the patient should be regarded with the physician's eye. Intelligent and discreet questions may discover the patient's habits and mode of living. The general condition of the mouth, tendencies to neuralgia, dyspepsia, &c., should be inquired into. Clean, dainty instruments are required to be skilfully handled in a sympathetic manner. No bungler with coarse, rudely-fashioned tools should ever approach an aching tooth. The dentist must be a man of finer susceptibilities with all his faculties about him.

There are some women who, without any knowledge of gardening, root up plants and stick them in the ground again with their fingers, and the things grow and flourish as if by magic. Shall I be regarded as being sentimental when I say that I have seen dentists who have not had all the best advantages of a professional training who have had remarkable success in treating pulps, and whose patients will always say that they do all their work painlessly?

The dental pulp is an extremely sensitive organ, not only to pain, but to touch, and to chemicals; and while it will tolerate a great deal in its native surroundings, it objects strongly to external interference. Therefore extreme gentleness and carefulness are necessary in handling it, and withal cleanliness.

Common sense will lead us to adopt methods to prevent the ingress of foreign micro-organisms, and prevent wounding or injury of the surface of the pulp. The essential oils (and oleum caryophili has long been my favourite, though in loyalty to my native land I have used eucalyptus largely) are safest to use, allaying pain and acting as antiseptics. The pulp must not be poisioned with such things as creasote or carbolic. And if after many years, when the test of heat has been applied to the tooth, it is discovered that the pulp is dead, I say again we begin our root treatment and give the tooth another long lease of life.

But we are not content to go on by a natural, rational method which has certainly succeeded in the past; so certain drugs such as formagen have been introduced. This has been seriously discussed as a specific for saving pulps in all stages of disease. Listen to what Mr. Colyer says (*Transactions Odonto. Society*, March, 1898, p. 82):—"From clinical observations, formagen seems to be an excellent material for the treatment of inflamed and exposed pulps. I have used it now for some nine months in almost every type of case, and have found it produce excellent results, but whether these will be permanent time alone will prove." I must confess that I cannot understand what difference there has been shown to exist between capping pulps with a little oxyphosphate powder and oil of cloves, say, or any other of the many other common methods adopted, and which usually end in the death of the pulp after a few years more or less without pain or symptoms.

I knew a dentist who invariably, after reducing all inflammation, flowed oxyphosphate cement over the pulp, and years after filled the canals, which were usually found to be dry and sweet, and this he called the humane method of destroying pulps.

The condition of an exposed pulp is in every case different, and while classifications are necessary and valuable to the student, the experienced operator finds a different treatment to meet each case.

Unfortunately I have not always been able to follow up the history of the teeth I have treated over a great many years, but I have done so in a number of cases, and I can show to-day a tooth which had a large exposure of pulp in '81 which was capped with copper amalgam and is still doing good service; and another, capped with oxyphosphate and oil of cloves, which I hope to use in the mastication of our lunch to-day; and still another, a superior wisdom tooth with a large buccal cavity filled in '85 with cu. am.

I have capped exposed pulps with a gold cylinder, and continued the filling as a bridge over it; with copper amalgam; often with a piece of court plaster; and often with a metal cap concavo-convex; but I regard the kind of capping as of the smallest importance. The virtue of the operation lies in the mode of doing it.

I never fill over an exposed pulp without explaining the fact to the patient, and giving a warning of trouble and pain which may be felt. I hold most strongly that it is well worth while to try to save the pulp, and by trying deliberately and intelligently there will often result a good, useful, and permanent saving of a tooth which is quite alive and not partly dead.

When once a pulp has passed the borderland of health it will not recover, and if one is able from examination and history to diagnose this condition, then by all means extirpate. But as long as it has still the power of living, it will recover just as other parts of these wonderful bodies of ours take back and recuperate themselves, and disease is banished and health and vigour and joy are restored. So give the pulp a chance by rational means and by protection from its enemies and from poisons and drugs which we do not understand, and we shall enjoy a larger measure of success as conservative dentists.

One word with regard to accidental or intentional exposure of the pulp.

I consider it has been established long ago that the complete removal of all carious dentine from a tooth is not necessary. That all caries must be removed well from the external edges of a cavity is essential, but deep caries has never been shown to continue after the cavity is sealed up, or to endanger the pulp.

Immunity from failure is Utopian. As long as the dentist is mortal and his patient too, and the rush and tear and wear of life exists, must means be adopted to meet the ends, and hard and fast rules be departed from to meet the exigencies of the suffering patient who looks to us for relief from pain.

THE latest development in the advance of "public" dentistry is—at least so we are led to understand—the addition of tooth-brushes to the toilet furniture of prisoners in Her Majesty's gaols. Truly it is time that the tooth-brush should be recognised as a necessary article to all classes. A member of this Association, of whose veracity there is no possible doubt, relates the following incident as an illustration of the rarity of teeth-cleansing appliances among the lower classes:—"It is not very many years ago since I saw, on a Saturday night in the King's Road, Chelsea, a crowd gazing in awe-stricken wonder at an itinerant vendor of tooth-powder and brushes, who, by way of impressing his audience with the value of his wares, was giving a practical demonstration of their uses upon his own teeth. I blessed him for a philanthropist, and passed on my way rejoicing."

Notes on a Case of Hæmorrhage after Extraction.

READ AT THE ANNUAL MEETING OF THE WESTERN COUNTIES BRANCH, JULY, 1899.

BY W. H. GOODMAN, L.D.S.ENG.

A PATIENT (gentleman, age 32), came to me on the 3rd of May last at 4.30 p.m., to have some roots extracted from the right mandible. On two occasions, a short time previously, I had extracted several roots from the maxilla, and in each case the hæmorrhage was slight and ceased within half an hour. On this occasion the roots extracted were four in number, viz., the first and second bicuspid, and two roots of the first permanent molar. They were somewhat loose, and came away very readily, without any laceration of the gum, and there was nothing abnormal, with the exception of the first bicuspid root, which showed signs of previous periosteal trouble, which had terminated in suppuration on two occasions, to the patient's knowledge. The primary hæmorrhage was considerably more than after the previous extractions, and some tinct. hammamelis having been given in the water used for rinsing the mouth, it quite ceased in about fifteen or twenty minutes. The patient then proceeded home, with the usual precautionary instructions with regard to the drinking of hot fluids, avoiding the recumbent position, &c. At about 6.30 (two hours after the extraction) bleeding recommenced slightly, but was almost stopped by the use of cold water. It soon, however, recurred, and bled very freely. I had, unfortunately, gone out of town, and the patient becoming alarmed sent at 7.30 for a surgeon, who plugged the socket of the first bicuspid from which the hæmorrhage was proceeding with wool steeped in liq. ferri. perchlor. This somewhat checked the bleeding, but did not stop it, and it shortly came on again very severely, the patient's mouth quickly filling and refilling with blood. I reached the patient's house about 10 p.m., having been sent for, and found the patient bleeding freely. He had evidently lost a considerable quantity of blood, and showed symptoms of approaching syncope. With the assistance of the surgeon I removed the clots from his mouth, and syringed with cold water. It was then seen that the hæmorrhage was not proceeding from the sockets (only a slight oozing being noticeable), but that it was welling up apparently from the floor of the mouth. After further syringing and swabbing with cotton-wool a small vessel was distinctly seen spouting towards the tongue from the mucous membrane on the inside of the jaw, on a somewhat lower level than the position formerly occupied by the apex of the first bicuspid root. It was found impracticable to twist the vessel, so a pad of lint steeped in a saturated solution of tannic acid in abs. alcohol was applied, and pressure kept up with the finger against the jaw. The hæmorrhage ceased immediately, and did not recur. The digital pressure was kept up for about one hour and a half, and then gradually relaxed, the pad of lint being left *in situ*. The patient, a tall man and somewhat anæmic, made a good recovery, and I was unable to obtain the slightest history of any hæmorrhagic diathesis. The surgeon who attended the case informed me that two days afterwards he could see quite clearly a small fissure in the gum on the inner side, which terminated below in a small raggedly circular hole.

Abstracts and Translations.

On some Rarer Forms of Abscesses connected with Teeth.[1]

DELIVERED AT THE ANNUAL MEETING OF THE BRITISH DENTAL ASSOCIATION AT IPSWICH.

By J. G. TURNER, F.R.C.S., L.D.S.

ASSISTANT DENTAL SURGEON TO THE DENTAL HOSPITAL OF LONDON.

GENTLEMEN,—The common alveolar abscess is outside the scope of this paper, but I must draw attention to the fact that it is not really an *alveolar* abscess—the term refers only to the common site of exit of the pus, and is a very misleading expression. The roots of all the teeth in either upper or lower jaw reach well into the body of the bone, hence an abscess starting from septic absorption of dead pulp is an abscess of the body of the bone; or in the upper jaw, perhaps abscess of the antrum.

Two other anatomical points are worth remembering; the insertion of the buccinator into either jaw is of sufficient strength to direct the course of pus; and the roots of teeth vary in length.

An abscess formed round the apex of a tooth, after perforating the outer plate, may track a little way up beneath the periosteum, and perforate on the side of the alveolus into the mouth; this is the common form.

But it may have perforated the outer plate below the attachment of the buccinator, in which case it will first strip up a greater or less extent of periosteum, forming a sub-periosteal abscess when the area stripped up is of any considerable size; then burrowing in the tissues of the cheek, it will form a second pocket for itself, usually subcutaneously, after which it perforates the skin and opens outside. Or, the pus may continue to burrow among the planes of connective tissue of the neck, forming a pocket wherever there is a large plane of tissue to be stripped up, until arrested by some firm, bony attachment where the final collection will take place, and the abscess will open itself.

This external opening is dependent on the length of the tooth, and the position of the attachment of the buccinator. It occurs chiefly in connection with the lower teeth, but I have seen it also in connection with a right first upper permanent molar; the periosteum of the jaw was stripped up over a large area, and there was a large sub-periosteal abscess, from which was a small tract leading to a subcutaneous collection of pus, with two large pockets opening by two sinuses about half an inch below the lower border of the orbit.

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[1] This paper having been already published, according to usage we confine ourselves to a limited abstract.

So far we have, as rarer forms, the sub-periosteal abscess, the interstitial abscess, and the subcutaneous abscess. The first of these should be treated from inside the mouth. In opening it, it is a safe rule to keep close to the bone, the soft parts being stripped off the bone by the pus, and carrying important structures with them. They may be drained with gauze or drainage tube, and must be syringed frequently, *e.g.*, three times a day. I have successfully drained into the mouth a very large sub-periosteal abscess situated over the angle of the jaw, and requiring some two inches of drainage tube to reach it. Sometimes the sub-periosteal and the subcutaneous abscess are so close one over the other that the incision made to open the subcutaneous will also open up the sub-periosteal, which should then be treated from the outside. In this case the extent of the bone laid bare, and its white colour may seem alarming, but I have never seen necrosis take place. The bone still has its internal blood supply, and constant cleanliness will prevent infection from without. Collections of pus between the planes of connective tissue, or sub-cutaneous, must be treated from outside; they cannot be easily or safely reached from within, and when there are signs of suppuration an opening should at once be made. Hot fomentations and delay tend to increase the amount of pus, and render an unsightly, adherent scar almost unavoidable, which early incision would probably have prevented.

The scar, which is often most disfiguring, should be released from the bone by a tenotome passed close to the bone either from inside the mouth, or from outside, whichever is more convenient; and subsequently the parts should be massaged daily to prevent re-adhesion.

In all these forms of abscess, as also in the glandular to be mentioned directly, whenever they persist for any length of time, the tooth which originally caused the mischief may have become quite painless, being perhaps cut off from the abscess, and apparently healthy again: or, though there is still suppuration going on round its apex, yet painless owing to the formation of an external sinus; or the secondary mischief may persist after extraction of the tooth, especially in subjects of low vitality.

This remark applies particularly to the glandular abscess. This may form as a result of direct absorption from the original focus round the tooth, or from infection from one of the secondary collections of pus. The gland affected is usually a sub-maxillary or one of the higher superficial cervical glands. In the case of people of "strumous" diathesis, *i.e.*, of low resistance, the gland may enlarge from but slight irritation, and break down long after the original tooth trouble has been forgotten. The acute glandular infection is in some cases the starting point of spreading cellulitis of the neck, a most fatal disease. The cases in which we should be particularly on the guard for this disease are those in which the glandular implication is very acute, and those in which there appears to be but little trouble around the offending tooth beyond some tenderness and injection of the gum, but considerable glandular trouble. In such cases I am convinced early incision will save life.

There are two other forms of abscess which I wish to describe: the one may be called the chronic abscess of the maxilla, *par excellence*; and the other is an abscess dependent on tooth remains, or on the healing over of an imperfectly drained septic socket.

The chronic abscess of the maxilla, when fully developed, has hollowed out the whole body of one maxilla till it is only a shell of compact tissue, remaining, however, limited to the bone of its own side; it opens by a small sinus over a tooth, usually incisor or canine, and though it may have perforated the bony shell elsewhere, *e.g.*, in the palate, never has a second external opening; the discharge is thin, and not profuse; there is little or no pain or tenderness; there is no bony enlargement, and but slight swelling of the soft parts. The cavity is irregularly lined with granulation tissue. The originating tooth—by this time always dead—is indicated by the position of the sinus. If it has died as a result of caries, there will be a history of one or more acute attacks; but if free from caries, then there may be no history of pain, and the patient may even be unaware of any abscess. The tooth will be found loose, from absorption of its socket, and a small steel probe will pass right up to the apex. Pathology: There has been a destructive caries of the alveolus, spreading up to the apex of the tooth, started first by the deposition of a ring of tartar around the neck of the tooth, followed by the lodgment of food and *débris*, which has decomposed, and set up a destructive caries of the alveolus. The process, once started, is self-supporting, more tartar and more *débris* taking the place of the destroyed alveolus, till at last the apex of the tooth is reached, and the vessels nourishing the pulp are exposed to the attacks of the disease. These become thrombosed, the pulp dies, and the whole is readily infected *viâ* the apical foramen. From this point the disease spreads throughout the whole bone, reinforced by the decomposition of the pulp. The process appears to be slow infective caries of the bone, different in nature from the ordinary abscess of acute origin.

Obviously an abscess of such pathology may occur in the lower jaw, and I think I have seen it, but one with similar clinical features does not occur, since the shape and size of the bone do not lend themselves to it, and the periosteum of the lower jaw, if irritated, will deposit new bone, while that of the upper jaw appears to lose this function after about the age of sixteen, explaining why there is no bony enlargement in these cases.

This abscess must be opened, scraped, and drained and syringed. During the healing there may be more pain than previously, often referred to the teeth, the nerves of which may be caught in the contracting cicatricial tissue. The tooth itself may be saved if firm enough, as the extraction of the one tooth does not go far towards destroying one of the bony walls, and an extensive cavity of this kind takes as long—several months—to heal after extraction of the tooth as without. An interesting point in connection with this abscess is that when an opening has been made into it, and the cavity is filled with blood, or other fluid, the fluid can be seen to pulsate. This pulsation is communicated to it by the vessels in the walls of the cavity, and is analogous to a form of pulsation seen in bleeding, or oozing of clear fluid, from the external meatus of the ear.

The second form of chronic abscess occurs in both jaws, but is clinically more interesting in the lower. It depends on the presence of a small piece of the end of a fang, or on insufficient drainage after the extraction of the dead tooth. This latter form I have noted only in the lower jaw. When a very small piece is left in, it is well within the body of the bone; the alveolus closes over, and is absorbed just as if the whole tooth had been taken out; and the same may happen after the extraction of a tooth whole, the source of irritation being some small piece of dead bone, or small collection of pus cocci, which, harmless at first, have slowly multiplied and gathered strength until, from lowered resistance or other cause, they are strong enough to cause suppuration.

When this occurs in the upper jaw there is pain and tenderness, some swelling of soft parts, but no bony enlargement; the trouble may subside and recur again at intervals. If untreated the antrum may be involved. The nearest lymphatic glands may be enlarged. I show you here a small piece which, five years after extraction of the rest of the tooth, caused such an abscess, with subsequent involvement of the antrum.

In the lower jaw, as in the upper, the alveolus may be entirely absorbed, and there is pain and tenderness, and some local swelling, in this case partly of soft parts, but chiefly bony, involving the body of the jaw. Owing to the position of the inferior dental nerve, there is often, especially in the bicuspid region, severe neuralgia. As in the upper, the nearest lymphatic gland may be enlarged and tender. The neuralgia is caused by the abscess in its enlargement opening up the canal of the nerve, and I have in two cases satisfied myself that the nerve was actually at the bottom of the cavity.

In this case there is very severe, continuous, heavy pain, and the more acute shooting pain which occurs at intervals without any necessary regularity; it is set up by any irritation, such as cold air, movement of eating, &c.; it spreads in anatomical order to the other branches of the fifth nerve, first to the ear, then up the side of the head to the vertex, to the infra-orbital nerve, to the supra-orbital nerve, and down the neck. It lasts a varying time, from a few seconds to hours. It is unaccompanied by trophic changes, but there may be increased secretion of tears or saliva. It is confined to the one side, and appears always to start from the seat of mischief. If the abscess has not involved the inferior dental nerve, this neuralgia will be absent. In a case I recently operated on, dependent on a first molar tooth, there was only a slight local pain, tenderness, or swelling, but dull aching on using the jaw for eating, and one small gland was enlarged and tender; an abscess was found deep in the centre of the bone. No piece of tooth was found, and all the other teeth were sound.

The length of time during which things may lie dormant varies greatly; when, therefore, a patient complains of pain or neuralgia starting in a spot where there is now no tooth, there may yet be a chronic abscess and the alveolus may be normally absorbed. Other points in diagnosis are: local pain and tenderness, with some swelling of the soft parts, and in the lower jaw some bony swelling; pain starting from one point—the seat of mischief (this I have hitherto found constant, but it may later prove not to be so), unilateral, and perhaps accompanied by increased secretion of tears or saliva; swelling of nearest lymphatic glands. A skiagram should always be taken of doubtful cases.

The treatment consists in opening and draining; where the bone is thick, and the site far back in the lower jaw, and in addition the soft parts very movable and bleeding freely, this is by no means easy. I have had a special trephine made with a heavy handle, to give steadiness, and with stout teeth, and have found it most useful.

In the after-treatment, the cavity should be packed lightly, and syringed at least twice daily. The lotion should be made with boiled water, and used in plenty. The mechanical cleansing of a good flow of water is most important. Very strong solutions of antiseptics cannot be used in the mouth without making it sore; 1 in 40 carbolic acid is the strongest permissible. H.Cl is extremely painful when applied to inflamed surfaces. Formalin even in 1 in 100 solution may have disagreeable effects. I have seen a patient who had swallowed at the most 5 minims of the 1 in 100 solution become faint and nauseated, and though she was sufficiently restored, by use of stimulants, to go home, yet had a recurrence of some of the symptoms after arriving there.

The Early Decay of the Teeth in Britain.

By JAMES CANTLIE, M.B., F.R.C.S.
SURGEON SEAMEN'S HOSPITAL SOCIETY.

SINCE the announcement appeared that I intended reading a paper upon this subject, I have received numerous letters expressing interest in the manner, and asking questions of various kinds. That the teeth of our children are in a bad way is an acknowledged fact, proved over and over again by scientifically-conducted investigations which leave no doubt on the subject. The teeth of our school children in all grades of society, in our public schools and in our Board schools, have been examined and fully reported upon. The result of all such inquiries has been the publication of statistics proving an abnormal amount of disease. The national importance of this can hardly be over-estimated. We cannot expect to rear a healthy race on carious teeth, and it is to try to stem an evil which is sapping our national strength that I would seek your attention now. The remedy suggested by all who have dealt with this matter is that carious teeth should be immediately attended to, that misshapen jaws should be corrected, and, to effect these ends, recommendation is repeatedly made that children's teeth in our schools should be systematically inspected, stopped, or removed as occasion requires.

The cause for this premature and abnormal decay is, however, scarcely dealt with. True I have indeed received innumerable suggestions as to the cause, but scarcely two people are agreed on the subject. One blames sweets, another infant foods, a third declares that children partake at too early an age of animal food; some contend that it is a developmental change, and that in time the human teeth will disappear; some ascribe the decay to two such opposite conditions as gout and rickets. In fact, there is scarcely an inherited disease or a variety of human food or drink which has not been suggested to me as the cause. The developmental idea is a favourite theme; it is even seriously discussed by persons of respectable scientific attainments. The idea is that, in our quest after education, we are attracting a superfluity of blood to our brains and thereby starving our teeth and our jaws. A very pretty theory, indeed, but it is not true. The future of our teeth, in common with the general state of our adult physique, depends largely on the care taken of the infant during the first two years of life. The future of our teeth is laid before the child has begun to use its brain; and not only is this true of the milk teeth but also in regard to the permanent, and one may fairly gauge what the state of the permanent teeth is to be by a study of the development and shape of the jaws at that period.

Another phase of the developmental theory is that our jaws are getting smaller, leaving less room for our teeth. The teeth, therefore, it is contended, become overcrowded and overlap, leaving nooks and recesses in which particles of food may find shelter, setting up decomposition, eroding the enamel and leading to caries of the dentine.

This is stating an actual condition whilst begging the cause. Our bodies are not changed thus rapidly. We are acquainted with various functionless remnants in our bodies. The hair on our bodies has lost its original purpose, and the gradual disappearance has been going on ever since man was known —yet is it with us. The appendix veriformis still appears attached to the cæcum, and has been there to all appearance unchanged since anatomy first revealed its presence. The nictitating membrane still occupies the inner canthus of our eyelids ever since it performed the function of a third eyelid. In like manner many developmental structures are present in our bodies, but it is not within the knowledge of man that any decisive change has taken place in their structure or size, although their function has well-nigh, if not wholly, gone. I make these statements for the purpose of showing that developmental changes are gradual, very gradual, so gradual, indeed, that neither tradition nor recorded history has any change to notify, and so it must be in the case of our jaws. The generation immediately before us had fairly good teeth and well-shaped jaws, and to assume that in one generation the development of our jaws should have so modified as to affect the teeth of the rising generation is contrary to natural law. I would therefore dismiss these two theories—namely, the starvation of teeth by the development of our brains, and the sudden arrest in development of our dental and maxillary apparatus — as wholly unworthy of serious consideration. Were the evolutionary theory true the fight would be a hopeless one, for neither art nor science could stem it. Were it true, we cannot expect to raise a healthy race of people, and must be content to succumb before a people with better physique.

In spite, therefore, of all that has been said, it is not natural that the teeth of our children should become carious at an age when they are most required. They are not developmental changes that are at work, but, in my opinion, causes which are capable of demonstration and arrest if we have but the courage to deal with the question.

The dental art has attained so high a position in this country and in America, that, so far as the mechanism of the art goes, there is but little more to be done. But I would like to induce our dental brethren to look a little further afield, and to tell us how to rear the child so that the teeth, while yet unerupted and within the dental sacs, may be allowed to grow to the greatest perfection. It is not only when the teeth are through that I would ask the dentist's aid ; it is to a period when the basis and substance of the tooth is being formed that I would wish him to direct his attention. If dentistry is to aspire to its highest ideal, it must not be content with merely repairing or removing damage done. We look to it to tell us why do our children's teeth decay so early, and what steps are we to take to remedy the evil, so that sound teeth in the young may be hoped for ? It is during the period of growth and development, during the antenatal stage perhaps, or at any rate during the first few months of infant life that we must look for guidance and direction. We want to know what error of diet or mode of living on the part of either the mother or the child fills our children's mouths with painful stumps and festering abscesses.

In elucidating this point the first question that suggests itself is: Has any radical change in the feeding of children taken place during the past fifty years? The answer is known to every one, and it is this: Artificial food, and, more important still, an artificial manner of feeding has become a general custom within the period mentioned. The wet nurse is a being of the past. In many instances, I grieve to say, the natural mother has also to a large extent disappeared. Pleasure in one phase of society and self-imposed form of labour in the other has deprived the infant of its natural food. Women amongst the leisured class will not allow the nursing of their children to interfere with the routine of what they are pleased to term social duties; whilst amongst the less opulent class the gossip at the mill has more attraction than the prattle of the children. The natural calling of both classes is being sapped by the shadowy myth of female rights and independence, and the future is being sacrificed to pure selfishness.

The majority of children are now brought up on the "feeding" bottle. Let us consider the food thus supplied for a moment, as it is all-important. The food is composed of cow's milk, warm water and cane sugar. These are all artificial, or shall I say unnatural, elements for the human infant, but it is not so much with the character of the food as with the way in which it is supplied, that I join in issue. The child must have food artificially when its mother cannot supply it, and were these simple substances used to the exclusion of more dangerous food it would no doubt be for the child's good. But it is to the temperature of the food that I wish to direct attention. An ordinary bottle full of milk requires ten to fifteen minutes to consume, or, at least, it ought to. It is evident, therefore, that at the beginning and end of the meal there must be a marked difference in the temperature of the milk. The suitability of the temperature is usually judged by the mother or nurse tasting it. But the mother can sip her tea at 140° F., and considers tea cool if it only reaches a temperature of 110° F. We educate the mucous membrane of our mouths to stand a temperature many degrees above what nature intended. Imagine the effects of a hot fluid, the temperature of which is thus judged, upon the infant's mouth. The tender mucous membrane must be well nigh, if not actually, scalded; at least a sodden condition of the lining membrane is established and a continued irritation maintained. The effect upon the dental sacs, imbedded in the gum, must be to withdraw nutrition from them owing to the counter-irritation of the hot fluid, and the congestion of the gingival membranes it produces. The dental sacs are thereby starved—the normal amount of their nutrition being withheld. The temperature of the human milk supplied by nature to the child is about 99° F. throughout the process of suckling. It is not warmer at the beginning than at the end of the process, as so often happens during bottle feeding when a drop of 20° in the heat of the milk in the feeding bottle obtains. It is needless to dwell upon the local and digestive ailments consequent upon food of so abnormal a quality; and, having broached the subject, I will pass on to another. After withdrawing the feeding bottle teat from the child's mouth, the modern mother in 70 per cent. of cases substitutes what is called the "comforter." This solid piece of indiarubber, shaped like a teat to deceive the child, shaped and used for the purpose of causing the child to imitate the action of sucking, is a modern introduction which we could well spare. What is the effect of continued abortive sucking of a solid teat? Harder and harder does the child suck in the hopes that the "comforter" will yield some nourishment. The muscles employed in sucking are exercised to a degree, with the result that they become hypertrophied, and generate an amount of power which tells detrimentally on the shape of the jaws. When the mouth is exercised in sucking, the cheeks are drawn inwards and impinge against the sides of the upper jaw. With constant efforts in this direction the hypertrophied muscles press upon and compress the upper jaw, ultimately causing the sides to be drawn inwards, and the front of the upper jaw to be pointed and to protrude like a pig's. But compression of the lateral aspect of the upper jaw causes the arch of the palate to rise, hence the high arch we so frequently see, and the ill-fitting jaws, the upper jaw falling within the lower at the sides, and overlapping it at the front. Nor does the evil rest here. The hard palate can only be arched at the expense of the nasal space immediately above it, and the consequence is an obstruction to the entrance of air by the nose. A misshapen jaw is always associated with nasal obstruction, and breathing takes place by the mouth in place of by the nose.

I am aware this is heterodox pathology; our nasal specialists declare it is obstruction of the nose that is the primary cause of breathing through the mouth. I go a step further back in tracing the evil, and maintain that it is the causes which produce the high palatal arch which are the source of nasal abnormality. The nasal obstruction is secondary to the high arch, and the high arch is produced during the first twelve months of infant life by abnormalities of feeding.

What are the consequences of a nasal mucous membrane which is left to soak in abnormal mucous secretion instead of being traversed by the incoming and outgoing currents of air? It gets sodden and swollen, it increases the obstruction by becoming hypertrophied, its adenoid tissues are abnormally nourished, and they grow and protrude from the surface as do vegetables in the forcing pit of the gardener.

Adenoid, nasal and pharangeal growths have become a prevalent factor in disease during the last decade or two. They came in synchronously with artificial foods, feeding bottles, "comforters," early dental decay, and misshapen jaws, and I believe some common cause is at the root of all these evils. I am aware that bad teeth and misshapen jaws are met with, although much less frequently, but they certainly are met with, in children who are naturally fed and who have never had a "comforter" in their mouths. But the responsibility of those entrusted with our natural health does not end because of that. If the decay of the teeth is due to abnormal feeding or other causes on the part of the mother during either the antenatal period or during lactation, let the evil be pointed out and remedied if possible. If there are errors in diet, be they under the guise of "nourishing stout," "invalid port," or wines with adjuncts of many kinds, let them be proclaimed. If it is found that in some parts of this country, owing to soil, water, &c., good teeth prevail, let the subject be investigated, and see if by addition to the ingesta of less favoured districts a similar good result cannot be attained.

I am quite prepared for adverse criticism. I am quite aware that dental caries is known in rural as well as in urban populations. I am also aware that toothache prevailed from the earliest times, although Job is not mentioned as being afflicted with "that hell o' a' diseases," as Burns styles it. I also know that in Roman times feeding bottles were not unknown, and that such dental arts as bridging and stopping were practised during the heyday of the Roman Empire. This last reference perhaps favours my argument. Luxury in Rome led to unnatural motherhood and the use of the feeding bottle, and they are held to have reached the acme of their civilisation, by some, because what we are accustomed to style modern dental arts were known to them. But this was only during the period of their luxury, and, as we know, that was followed by collapse, defeat, and expulsion. The conquering Goths knew none of the practices of civilisation in the rearing of their young. Their simple diet gave them fine teeth without the aid of the toothbrush or of that necessary accession to high prandial civilisation, the dentist.

I am also aware that carious teeth are met with by the missionaries and travellers amongst the most remote and primitive races of the earth. Even the Matabeles and the Ngnoni of Central Africa suffer from toothache and decayed molars. Nor is the evil confined to mankind. Decayed teeth and painful stumps are met with in the lower animals, but with these it is not the young that are affected. Given healthy teeth, the young may grow to perfection, with carious teeth they cannot.

I have not traced the further trouble of bad teeth : dyspepsia, the production of ptomaines, convulsions, neuralgia, headache, undeveloped chest owing to nasal obstruction and the development of a physique in which the seeds of disease are only wanted to generate tuberculosis and allied disease. We have heard a great deal of the national importance of dealing with the question of tuberculosis, and with this every man and woman sympathises. But I am sure that were we to consider the infant's welfare during the first two years of life, we would contribute not only to lessening the amount of tuberculosis, but strike at the root of many other as important ailments which fill our hospitals, and account for the degeneracy of our urban population more especially. The early decay of the teeth is but one symptom of want of care of the infant, but it is an evidence of something wrong which is patent to everyone, and which causes anxiety to the parent, suffering to the child, and deterioration of the national health.

Have I made my case strong enough to induce this meeting to take some decided step? Are my arguments too illusory to stimulate you to serious action? If so, please neglect them, but do not, I beseech you, neglect the facts. They are these, that the condition of the teeth of our children is bad, that it is getting worse, that it has become aggravated during the past generation, and that it is controllable. Science is surely sufficiently advanced to deal with this subject, and the men or women amongst us who have the patience, the ability, and the patriotism to grapple with the subject will deserve well of their country, and eliminate from amongst us much unnecessary suffering and physical incompetency.

I would test the effects of my words and your earnestness in the matter by asking you to draw up a form of motion to be submitted to the Council of the British Medical Association to nominate a Commission to deal with the subject; on that Commission I would place two dentists and a physician, men who are versed in children's ailments and possessing the scientific attainments necessary for such work. I would suggest that a grant of £100 be asked for the purpose, and that the Americans, and perhaps the Germans, French, and Italians, be asked to co-operate with the British Commissioners and to present a report, preliminary if only that form be feasible, by January, 1901.

I have ventured to bring forward various ideas that have occurred to me in connection with this subject, not that I wish to stifle or restrict inquiries in other directions, but that they may serve as a basis to argue from. Their condemnation, if it is done with real knowledge, may help the cause of the preservation of our teeth just as well as if my statements were accepted as true explanations of the matter. It is to gain an end—the preservation of teeth—that I aim at, not at getting my statements accepted. And if by condemning and rejecting my poor arguments attention can be called to this important question of public health, I will still consider that they have done their duty.

RESOLUTION.

The following resolution, proposed by Mr. Cantlie, seconded by Dr. Esler, was then put to the meeting, and carried unanimously:

That, in view of the early decay of the teeth prevalent in Great Britain, this Section requests the Council of the British Medical Association to appoint a Committee of not fewer than three persons to inquire into the subject and to report thereon to the Council in twelve months from the date of appointment.—*British Medical Journal.*

Some Observations upon the Sequelæ of Adenoid or Lymphoid Tissue in the Naso- and Oro-Pharynx.

READ BEFORE THE NEW YORK ODONTOLOGICAL SOCIETY, APRIL 18, 1899.

BY WENDELL C. PHILLIPS, M.D., NEW YORK, N.Y.

ASSISTANT SURGEON TO THE MANHATTAN EYE AND EAR HOSPITAL, THROAT AND EAR DEPARTMENTS; ADJUNCT PROFESSOR OF OTOLOGY, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

SINCE the memorable day in 1870 when Wilhelm Meyer[1] published his classical treatise giving to the world the results of his original researches in the realm of the glandular structures of the pharyngeal vault, and thereby conferring a great boon upon child life, hundreds of articles have been published covering all phases of the subject. Indeed, so many and so frequent have these appeared that one hesitates considerably before attempting to offer a paper even upon some of its more remote relations.

Hackneyed as the subject may seem to the members of this Society, those who are so often brought face to face with the resultant conditions, even to retarded mental development, bone deformities, and deaf-mutism, should continue to exhibit the danger signal until all practitioners of medicine everywhere, not excluding your own profession, come fully to realise how dangerous they are to child life. One day's experience in any clinic for aural or nasal diseases will tell a convincing story of the results of disease of these glandular structures.

As this paper has chiefly to do with a short discussion of some of the resultant conditions dependent upon disease of the glandular structures in the naso- or oro-pharynx, it would seem that enough might be said to at least form the basis of an intelligent and helpful discussion.

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[1] *Medical and Chirurgical Trans.*, 1870.

A concise description of the chain of lymphatic glands found in the naso- and oro-pharynx has been given by Glutsmann,[1] and I quote his words: "The lymphatic tissue appears in the locality which interests us in this paper, in an aggregated as well as disseminated form, and is distributed uninterruptedly throughout the pharynx and naso-pharynx." "Waldeyer[2] very appropriately gave it the name of the lymphatic ring of the pharynx." "Its position is almost vertical, and, beginning at the vault of the naso-pharynx with the pharyngeal or Luschka's tonsil, it extends to the orifice of the Eustachian tubes, where we have a larger aggregation of follicles—the tubal tonsil."

"Turning downward along the posterior edge of the soft palate and around the posterior pillar, it reaches the faucial tonsil and across the base of the tongue called the lingual tonsil," or the tonsil of the tongue.

It must be remembered that these structures are normal to these parts; that in the normal healthy condition they are not visible to the eye, not even the faucial tonsil, and it is only when they become permanently enlarged as a result of disease that they become important factors in producing the many and grave diseases of the surrounding structures.

Disease of these glands is found in all climates and all countries in varying degrees, and there is much variance of opinion as to cause.

There can be no doubt that heredity plays an important *rôle* in causation, enlargement of these glands having been observed in children born even before term. Frequent colds and neglected catarrhs may also be considered as causes. They at least greatly aggravate a case whose tendency is to hypertrophy. It is, of course, a disease which manifests itself during child life. It is much more common than is usually supposed, and many cases which have sufficient enlargement of the glands to produce serious trouble, especially to the ears, do not manifest the marked symptoms supposed to be characteristic of the disease. To merely mention the symptoms will suffice for the purposes of this paper.

Facial expression, mouth-breathing, restless sleep accompanied by snoring, sucking of air, and occasional stopping of the respiratory act, dead voice, difficulty in eating or nursing, anæmia from lack of proper oxygenation of the blood, excessive discharge of mucus or muco-pus from nose and throat, frequent colds, almost constant bronchitis, deformity of chest walls, dull and listless appearance, suppurations of the middle ear, and a catarrhal inflammation of the middle ear, accompanied by a peculiar bluish-red colour of the membrana tympani, which I believe to be almost pathognomonic of the disease; and, in the later stages, the various deformities of the superior maxillary bone. The presence of large masses of adenoids in the vault changes to a large degree the normal physiological functions of the nose and naso-pharynx.

Instead of a respiratory organ, it becomes an obstruction to respiration and a general disturber of the process, and the epithelial changes in the mucous membranes of the nose and naso-pharynx finally result in a chronic catarrhal development. In aggravated cases the operation for removal brings about such a marked relief of the symptoms, especially those relating to sleep, that during the first few nights following the parents become alarmed at the extreme quietness which prevails. One mother remarked that the child was so still that she thought he must be dying or dead.

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[1] "Hyperplasia of the Lymphatic Tissue of the Pharynx and Naso-Pharynx," *Med. News*, Jan. 19, 1889, p. 62.

[2] *Deutsche Medi. Boch.*, 1884, No. 20, p. 313.

The diagnosis of enlargement of the faucial tonsils is easily made by simple inspection. In adenoid cases it is not so easy, unless one has had much experience.

There is usually some symptom which leads to an examination. It may be the facial expression, the voice, or discharging ears. Most authorities recommend that the diagnosis be made by introducing the finger into the vault, and by so doing feel the glandular mass. This procedure is very painful, makes the patient gag and strangle, and also makes the little patient one's enemy for life. I rarely find it necessary to adopt this method. Instead, by a little gentle persuasion, one can make a far better examination and diagnosis by means of the tongue-depressor and a small mirror. This procedure is not painful, makes the patient a friend instead of an enemy, and gives confidence to allow any further treatment of the throat that may be required. There are many cases which present symptoms so marked that a positive diagnosis may be made without resorting to either method of examination.

It has been proposed to make a diagnosis by means of the Valsalvan method; that is, by attempting to inflate the ear by holding the nose, failure to accomplish the act indicating the presence of adenoids. This method is only mentioned that it may be condemned, as the danger of forcing some of the ever-present infective secretion into the Eustachian tubes, where it is prone to excite severe inflammation, renders it an unsafe procedure.

Sequelæ.—Of the various diseased conditions depending upon and resulting from disease and enlargement of the glands in the naso- and oro-pharynx—*i.e.*, the adenoids and the faucial tonsils—a few may be mentioned. The general health is always more or less impaired, there is apt to be retardment of the general growth and physical development of the child, and anæmia. This results from the lack of proper oxygenation of the blood due to the reduced quantity of air, a condition which continues both night and day. It is also due to the frequent colds, the unhealthy secretions, and the almost constant bronchitis which these patients seem to be subject to. Among the most marked results of operation are the increased weight, better colour, and improvement of chest conformation.

In enlargement of the faucial tonsils we have the attacks of catarrhal, follicular, or suppurative tonsillitis, and later on a tendency to a degeneration which might be termed cheesy. These masses of cheesy-looking, foul-smelling material are found deeply imbedded in the crypts.

Chronic catarrh of the nose and throat may be looked for. In severe cases there occasionally may be found considerable deformity of the chest. The sternum becomes prominent, and the sides of the chest fall in, giving the pigeon-chested conformity. But even where no such deformity exists there is a general arrest of development.

After operation the gain in flesh is very rapid, often amounting to several pounds in a single month.

Of all the accompanying and resultant affections from adenoids and hypertrophied tonsils, that to the ear is fraught with the gravest dangers and most serious consequences. It may be either a catarrhal deafness or a suppurative process. In either case the condition is serious, threatening the child with partial or total loss of hearing, unless prevented by operative interference.

These growths are the most potent causes of attacks of middle ear suppuration, and when such attacks are frequent one may almost be sure to find the cause in the naso-pharynx.

That they are many times the cause of total and permanent deafness in children has been proven time and time again, and deaf-mutism from this cause is a deaf-mutism which might have been prevented if parents, dentists, and physicians could have been alive to its seriousness.

Frankenberger[1] claims that the percentage of adenoids in deaf mutes is much higher than in the general run of children, and he substantiates his claim by a report of the examination of one hundred and fifty-nine deaf mutes. Adenoids were found in ninety-four, or 59·49 per cent., whereas children in general have adenoids in the ratio of about 6 per cent. This remarkable frequency of adenoids in deaf mutes he considers as certainly not accidental, but that they stand in some causal relation to deaf-mutism. How little we realise how the deaf child is handicapped in the struggle for both education and later for his daily bread.

In a paper[2] read before the Medical Society of the State of New York at its ninety-second annual meeting I called attention to the fact that "children with defective hearing should be given every advantage in the struggle for education." There should be competent aurists upon the staff of every institution which has for its work the care of children, especially those for the deaf and dumb and the public schools.

The ears of all public school children should be tested, and such recommendations made to teachers and parents, especially if adenoid growths and hypertrophied tonsils exist, that the child may be relieved by operation and, if possible, cured.

Schæling has said, " The results upon its later mental development of a marked diminution of hearing in a child are, unless compensated for by other instruction, decided and permanent, affecting the understanding, the character, the self-confidence, and, at a later period, the ability of self-support, mental tools the possession of which is valuable and the want of which can never adequately be supplied."

When we consider the influence exerted by the ear upon human life, its intimate association with all the phases of life, being the messenger of all sounds, from the joyous prattle of innocent childhood to the stern sentence of the judge, from the inspiring music of human voices to the thunderous tones of the great organ and the finer strains of finer instruments, from the dull, discordant, rasping noises incident to great cities, to the cheering songs of birds and homelier and quieter sounds associated with pastoral life, we can but be convinced that, inasmuch as the responsibility for preservation depends largely upon the members of our profession, we should make every possible preparation to meet the demand.

As to the effect of enlarged faucial tonsils and adenoid tissue in the pharyngeal vault, upon the development of the superior maxillary bone and the conformation of the teeth, opinions certainly vary, and it would seem with good reason. It seems to this writer that too much stress has been laid upon these conditions as causative factors, both by dentists and nose and throat specialists.

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[1] *Annals of Otology and Rhinology*, November, 1897, p. 395.

[2] *Albany Medical Annals*, June, 1898.

So far as the faucial tonsil is concerned, it can have but little effect upon the condition mentioned, except in the severest cases, and where the hypertrophy is very great.

It does not seem feasible to argue that merely because of the fact that the mouth of a child is more or less constantly open when suffering from adenoids, the atmospheric pressure within the mouth would push the hard palate upward, as Hooper suggested. I certainly should not consider a V-shaped arch a diagnostic sign of adenoids, while, of course, it might lead one to search for them. Dr. E. S. Talbot, of Chicago, says, "There are many cases of contracted arches where mouth-breathing does not exist; there are also many cases of normal arches where mouth-breathing is present." Eames,[1] of Boston, in his paper remarks that "it has been said that adenoid growths in the pharyngeal vault cause irregularities of the teeth. I do not believe this to be the case, but rather that the dental irregularities are only another expression of the same cause that operates to produce the adenoid growth. In other words, there is one cause common to both, yet this cause may not be able in all cases to produce both. The bone-developing, vital movement, may be strong and active by inheritance, while the lymphatic glandular system is weak."

One of the latest contributions to the literature of this subject is that of Bryan,[2] in which he states that "a brief reference may be made in connection with mouth-breathing, to the changes in the arch of the hard palate, which in the very young becomes altered, assuming an acute bow or V-shape." "This deformity results from a combined pressure of the buccal muscles exerted on both sides, and a column of air constantly striking the hard palate." "Kooner distinguishes between the alterations of the upper jaw of children who have suffered from nasal stenosis before the shedding of the deciduous teeth and those which result from nasal stenosis during the change of teeth." "In the first instance there occurs generally the cupola-shaped elevation of the palate; the alveolar border, which naturally forms a semicircle, assumes the form of an ellipse, but there is no change in the position of the teeth." "If the nasal stenosis exists at the time of the change of the teeth then the lateral alveolar borders are approximated, while the anterior border is pushed forward, and the high arch of the palate increases until it encroaches upon the cavities above. The teeth in those cases assume a very irregular shape."

It was my purpose to have a large number of impressions taken from adenoid patients of all ages and degrees of enlargement, but I failed to get any one to make the casts. Here are a few, however, kindly prepared for me by Dr. W. W. Walker. These eight represent the adenoid patients present at my ear clinic at the Manhattan Eye and Ear Hospital one day.

They range from three to fifteen years. Some had both hypertrophied tonsils and adenoids, and some had adenoids only. The age is marked upon each cast, and the mark A indicates an adenoid case only, and A and T indicates adenoids and hypertrophied tonsils. You are better able to judge than I as to whether these few cases show any deformity. They all seem to be practically normal in outline.

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[1] "The Relation of Adenoid Growths to Irregularities of the Teeth," &c., *Journal of the American Med. Assoc.*, February, 1896.

[2] American Text-Book, "Diseases of the Eye, Ear, Nose, and Throat," p. 852.

I fully realise that the number is too few to be of any practical value in this discussion, but a long experience of active work both in hospital and private practice has led me to conclude that deformities of the superior maxillary bone accompanying adenoids and hypertrophied tonsils are the exception rather than the rule. In other words, one will find many cases which have adenoids and hypertrophied tonsils to a degree sufficient to require operative interference, to one which also has the jaw deformity.

Again, it is not an uncommon thing to find deformed jaws in cases which have never had adenoids or hypertrophied tonsils. I do not wish to be understood as taking the position that these conditions are never the cause of deformities of the jaw and teeth, but, inasmuch as the deformities mentioned are found both where they are present and where they are absent, it would seem fair to contend that these are far from being the sole cause. I would further suggest that in order to produce marked deformity of the jaw and teeth the adenoids or tonsils, or both, need to be so greatly enlarged as to produce almost entire mouth-breathing, and even then the condition would need to be present some years to produce such deformity.

It is certain that an important part played in this peculiar bone deformity is the general lack of osseous nutrition. This may be serious enough to come under the general term rachitis, or it may be just on the border line.

The presence of marked adenoid development may so interfere with the general health and nutrition of the body as to introduce an element of weakness into structure and growth of the bone. This state of affairs plus abnormal breathing would tend strongly to deformity.

It would seem that heredity is no mean factor in the causation of high-arched palate and crooked teeth. " Like father, like child," may be an axiom here as well as in other characteristics. One may inherit a Roman nose or a flat nose, high cheek-bones or a round facial contour. Why may he not inherit a V-shaped hard palate?

I am fully aware that some of the arguments in this paper are somewhat at variance with those usually made by writers upon this subject, but it is the honest expression of convictions which have ripened from considerable experience.

The title of this paper does not call for any discussion of the treatment, and at this late hour your patience will not be taxed by more than a few general statements, and these mostly confined to the removal of adenoids.

If the faucial tonsils are large enough to interfere with respiration or deglutition, or if they are the seat of frequent inflammatory attacks, they should be cut out. In childhood the operation is almost entirely free from danger. It is not necessary to administer an anæsthetic for a tonsillotomy.

If adenoid or lymphoid tissue is present in the vault of the pharynx in either small or large quantities, it should be removed, and with the least possible delay.

An anæsthetic should be administered unless there exists some good reason not to do so. The instruments recommended are legion, and I show you a few of them, good, bad and indifferent. It is important to have an assistant to administer the ether who is not only experienced in giving ether to adenoid patients, but who can at the same time render important service to the operator. Skilfully performed, there is but little danger in the operation.

The operation can and should be done rapidly, and the first instrument introduced should be of such a nature that nearly the whole mass may be taken at one bite. For this strong heavy forceps are the best. The Brandigee is probably the best of this type. This should be followed by the curette, and finally the finger may be introduced for the double purpose of ascertaining if all is removed and of tearing out any odds and ends remaining. All of this need not consume more than about one minute of time. It is a bloody operation and one not pleasant to perform, but the results more than compensate. One might amputate a limb with less loss of blood. By advising rapid operating I would not wish to be understood as deprecating the importance of thorough removal of the growths. Thorough removal is of the utmost importance, but the operation can be rapid and at the same time thorough.

The after-treatment is simple. Rest in bed for from twenty-four to forty-eight hours. The operation should be done at the patient's home or a private or public hospital, as the patient should remain where he is for the time above named.

Aside from these precautions, cleanliness is all that is necessary, unless some complication arises, and this is not likely to occur. Parents are gradually becoming educated to detect the symptoms of these growths, but wide-awake dentists have an unusual opportunity to detect these symptoms, and with it comes a duty to add to their already useful avocation that of aiding parents to see the importance of subjecting their afflicted children to operative interference, and free them from these conditions with their long train of attendant symptoms and serious results.

Every advancement in the science of medicine and surgery, as well as every increase in the knowledge and efficiency in the individual members of the medical and dental professions, means the saving of human life and the alleviation of human suffering.—*Dental Cosmos.*

Plate Work.

READ BEFORE THE MANCHESTER ODONTOLOGICAL SOCIETY.

BY C. RIPPON, L.D.S.I.

MR. CHAIRMAN AND GENTLEMEN,—When I undertook, some six months ago, to introduce the subject of "Plate Work" for your discussion at the request of your Council, I had some difficulty in deciding what particular points it was most desirable I should touch upon, as it is impossible to cover the ground thoroughly in the short space of time set apart for this subject.

Most of us, I do not doubt, have from time to time read the various methods advocated in text books on mechanical dentistry, and have discussed in our own minds the methods there set forth. I venture to think, however, that not one of us has yet read in any text book the one method which entirely corresponds to his own. There will no doubt be many points of difference, and it is just such points that we are desirous of having described; for, notwithstanding the fact that we are after all most conservative in our work, the knowledge of other methods besides our own enables us to be more resourceful and better fitted to overcome the many difficulties of our art.

I am not going to describe to you the general routine of plate work as given in the text books, but shall endeavour, as far as possible, to treat the subject in a practical way; dealing mostly on points upon which we may differ, and giving you in illustration the work in its different stages to completion. I will therefore ask you to follow me for a short time whilst I endeavour to reduce sheet metal into the various forms desired for dental purposes. I may say here that the dies I use for striking up plates are of the Pearsall pattern, and that I find two dies, and sometimes three counters sufficient for any case I have had to deal with, the third counter being of tin or zinc. We will presume, then, that all the dies and counter dies are ready for use, and that the metal is cut to pattern from 18 or 20 carat gold plate, and of a suitable gauge for the case in hand.

CASES 1 and 2.– The cases I shall take for illustration are those of upper and lower edentulous jaws. The edges of the plate should first be trimmed smooth with a file, then annealed, and worked roughly into shape with benders and horn mallet. The plate is then annealed again and placed in the counter; the die inserted and one sharp blow given. You will then notice if it is being driven in the proper direction, and if perfectly satisfied, drive fairly well home. It is then taken out of the counter and placed in hydrochloric acid, again annealed and struck into as perfect an adaptation to the die as is possible. In swaging a full upper, you will have experienced at times much trouble by the plate buckling, especially in cases where the palate is deep. It may also show signs of cracking or tearing. In any case the plate should be removed from the counter and any attempt to buckle should be corrected immediately by a few judicious blows with the mallet. Cracking or tearing should be soldered with fine solder at once to prevent it going further. I shall here demonstrate my method of overcoming these difficulties, and finally strike up a plate, using C. Ash & Son's differential lever swaging press, showing how easily and accurately a plate can be struck by its use, and avoiding staining of the plate by heavy hammering. I have been using this form of press for the past six months with the best possible result. The plate being thus far finished, a piece of fine wire is soldered round buccal and lingual margins to mark line of vulcanite or continuous gum. This adds considerably to the finished work, and also tends to strengthen the plate.

CASE 3.—This case is that of an upper jaw where all the sixteen natural teeth are standing, the palate being fairly deep and contracted, and the rugæ very pronounced. In all cases of this kind, a thinner gauge plate can be used, the deep corrugations of the rugæ tending to make the plate much more rigid. This case shows the plate chased round the necks of all the teeth.

CASE 4.—Is one where the incisor teeth are standing, and where a plate has been worn before. The incisors are longer than is natural, and have been forced outwards by the chased parts of the plate being pressed in that direction, and downwards in occlusion. They have also become loosened, and softened at the necks on the lingual side, and the constant movement has set up an inflammation, which, if neglected, would ultimately result in the loss of these teeth. In cases of this description, I construct the plate in such a manner that when it is finished it will not touch more teeth than is absolutely necessary to afford firm support. That would mean that the plate would only be in contact with the teeth to which it was to be fastened. There are many I know, whose temerity would not allow them to make a plate of such a fashion, but I can assure you that the success and appreciation I have experienced through this class of plate making is such, that I can, with perfect confidence, recommend it for your adoption. It has the advantages of being more cleanly, it covers less of the mouth, and does not interfere so much with the sense of taste, and articulation of speech. Tube teeth are next roughly ground to fit so far as to serve as a guide for drilling the holes in which the pins are to be fixed. These holes must be slightly smaller than the pin, so that the broach whilst enlarging the hole to the required size, may at the same time correct any error of direction. Slightly square the end of the pin with a smooth file, just sufficient that the four corners of the square mark the diameter of the wire. It is then pushed tightly into the hole, and soldered ; the solder will then fill up the space left between the pin and the plate, and after being trimmed off, the pin will appear as though it had grown there. In soldering near a band, care should be taken to protect it by smearing over with whiting.

CASE 5.—Is a partial lower combination. The plate is cut to pattern and swaged into position in the ordinary way. In these cases much difficulty is often experienced by the plate moving away from the position it is to occupy. The method I adopt to overcome this difficulty is as follows : having roughly swaged the plate into position, I drill a hole through the plate, and a considerable depth into the die, then drive in an ordinary cut tack, cut off the head, thus you have, strictly speaking, the plate nailed to the die. It is the most satisfactory method I know of easily overcoming what would otherwise be a most trying task. I would go still further if necessary, and drive two or three nails into the plate. The holes are easily filled up by forcing in a piece of wire and soldering with fine solder. After being struck to fit the die, the plate is chased round the necks of the teeth, fitted, and roughly trimmed up. A strengthener is then swaged to fit round from bicuspid to bicuspid. It is then placed in the counter along with the plate, and being both struck home, the strengthener will then fit perfectly over the plate. It is then trimmed to fit round the necks of the chasing "of the plate," and the two surfaces which are to come together are polished. This greatly facilitates the flowing of the solder. They are then placed into position and held together by clamps (which I make for that purpose), and soldered. In small cases of this description, the bands may be soldered without investing, by the use of the clamps, which are also useful in holding catches in position whilst soldering. A piece of thin wire is then neatly fitted and soldered to form a dividing line between the plate and the vulcanite on the lingual side. When the work is completed this wire adds considerably to the neatness and finish of the case, and makes it an easy matter to finish the vulcanite to it ; whereas, on the other hand, the plate is often badly cut in finishing down the vulcanite where a wire line is not adopted.

CASE 6.—Is that of a partial upper, with two centrals, right and left canine, and one molar on each side (six teeth in all), and is made to receive either tube or plate laterals ; the back teeth to be vulcanised on. This is made similar to the others but to illustrate the effect of the wire line in an upper partial case.

CASE 7.—Gold crowns for bicuspid and molar teeth have become so universally used that I fear a paper on plate work would be incomplete without some mention being made of their construction. The method I practise is after the one described by Mr. Lennox in his book, but with some modification I have adopted in order to meet contingencies, such as close bites, short inner cusps, and irregular articulation. I take a piece of matrix copper a little larger than the diameter of the root, and shape it to fit the festooning of the gum round the root to be crowned. It is then placed round the root, and the two free ends seized with a pair of square-nosed pliers and drawn tightly together, the matrix formed is soldered with soft solder, and the lugs trimmed with a pair of scissors. It is then replaced on the root, and an impression in composition taken with the matrix in position. The matrix is filled level with wax, and half an ordinary pin inserted head downwards. This is cast in plaster and the wax removed, and the matrix filled with fusible metal. Then, with a fine saw, cut through the matrix on the lingual side, carefully flatten it out, and use as a pattern for cutting gold plate for making the collar. The mandril thus produced in fusible metal is the exact size required for collar to be made. The crown is then struck up by placing a piece of crown gold plate, slightly larger than the crown itself, on a wax block, and swaged with dies made from natural teeth as advocated by Mr. Lennox. It is then fitted to the collar and soldered.

CASE 8 (Bridge Work).--We have now come to a subject which to my mind is one of the most debated in modern dentistry. What I shall say to-night is based upon my own experience, and I make the bold assertion that where a judicious opportunity occurs for the application of both crown and bridge work, it is the most up-to-date mechanical treatment we can give, and will prove a blessing to the patient and dentist alike. It has served admirably in my own mouth, and every dentist in a large practice must find more or less use for it. The reckless and indiscriminate use of bridge work must be condemned. Before suggesting a bridge to my patient, I always take models of the mouth, get the bite, and study the case, and if anything occurs which would contraindicate a bridge, I do not proceed further. The essential points to be observed for the well-being of a bridge are good roots for piers, good standing teeth for buttresses, and a free bite, and without these you may expect failure.

I will now proceed to give you my method of making a bridge similar to the specimens of work before you. Our first procedure is to make the collars for the roots, which are to carry the bridge. I take a piece of sheet metal, about No. 4 gauge, and bind it round the root in the mouth ; the two ends are seized with a pair of pliers and drawn tightly together so as to form a sort of ferrule. This is soldered and trimmed up. It is then replaced on the root and the pin placed in position, having previously soldered it to a piece of gold and platinum foil. The foil is then burnished over with a piece of amadou, or wad of cotton wool, so as to cover the root, and mark the edge of the collar. The whole is then removed and soldered, the same treatment applying to all the roots which are to carry porcelain teeth. The molars and bicuspids which are to carry gold crowns to be treated as previously described in the making of such crowns. The collars and crowns being ready, they are placed in position in the mouth and an impression taken over all, and cast in plaster. You now have a model with collars and crown in exactly the same position they occupy in the mouth. The bite is then taken, and teeth selected suitable for the case. These are backed, the backings being sufficiently high to meet the bite plate which is to form the grinding surface. These are ground and fitted into position, and built up behind with wax so as to make a bite plate. Take an impression in composition of the front of the teeth and model (this serves as a guide to keep the teeth in their proper position), and an impression of the bite plate in plaster, and cast in fusible metal. Swage up a piece of plate upon this die, using a wax block as a counter die. Fit carefully to the backs of teeth and contour the lingual side of bridge with wax. Invest, and fill up with scrap, and solder. It will be found on removal from the investing material that considerable alteration has taken place by the contracting of the metal after soldering. To avoid this to a great extent, the bridge may be made in sections of two, which may be finally soldered. And even with this precaution, slight contraction is observed, which can only be remedied at the expense of the root. Trim up with smooth files, and polish.

Finished Work.—Another form of bridge that I wish to bring before you, but which is only suitable for back teeth. It is one I have made to reduce as far as possible this contraction. The teeth are made all gold, resembling in pattern diatoric bicuspids and molars. They are made singly, and soldered together. The collar and crown are made of ordinary crown gold, and the bevelled lingual side of 16 carat No. 7 plate. This adds considerably to the strength and rigidity of the work, and also allows of the vent hole being filled up with wire, and burnished. It may not be an æsthetic piece of work, but it is decidedly prosthetic, and a bridge of the highest order.—*Transactions, Manchester Odontological Society.*

The Bone Caves of South Devon.

READ BEFORE THE BRITISH PHARMACEUTICAL CONFERENCE AT PLYMOUTH, JULY, 1899.

BY R. HANSFORD WORTH.

INVITED to read a short note on some local geological subject to your Conference, I selected the Bone Caves of South Devon as possibly the most suitable. It is impossible to do justice to the matter in the time available, but at least no other geological subject would admit of any briefer treatment, nor would be likely to prove of equal interest to those of your members who are neither geologists nor petrologists.

Wherever in Devonshire the middle Devonian limestone occurs, bone caves or fissures may be expected to exist. The list of localities includes Stonehouse, Plymouth Hoe, Cattedown, Oreston, Yealmpton, Torquay, Brixham, Buckfastleigh, Ogwell, and Chudleigh.

The most popularly celebrated cave is the Kent's Hole, at Torquay, long known as a cavern to which access was easily obtainable. It has formed from early ages a den, a human residence, an object of curiosity, the subject of wild antiquarian speculations, and last in the recent series, but greatest, the object of a classical investigation by a committee of the British Association, of which the late William Pengelly, F.R.S., was the dominant spirit.

For at least three centuries past the scientifically minded or merely curious have frequented this cave. In 1824 the first quasi-scientific exploration was undertaken by Northmore, who visited the cavern "with the double object of discovering organic remains and of ascertaining the existence of a Temple of Mithias." In the first object he was successful; the second is of the nature that brings its own fulfilment. With ingenious frankness he remarks: "And happy am I to say that I was successful in both objects; in the former pursuit indeed I have been followed by hundreds, in the latter by none." Which, be it observed, is matter for congratulation, since this ardent explorer found to his own satisfaction, "the baptismal lake of pellucid water," "the creeping path of stone purification," and, if he was not quite mistaken (for he spoke doubtfully) "the mystic gate of obstacle"; the "even month"; and possibly one more "arcane memorial," which sufficiently satisfied my mind upon the Temple of the extensively-worshipped and thousand-named deity Belin. All this was in 1824, and it is calculated that had Northmore found equally enthusiastic followers the whole of the mythologies of the world would now be lodged in that cave.

Fortunately the "discovery of organic remains" was the object that appealed more strongly to his successors, and MacEnery, Goodwin-Austin, and Pengelly obtained results from their investigations which have made the place classic ground.

The earlier investigators neglected, or else deliberately suppressed, the occurrence of human remains side by side with those of the beast fauna, and to this, coupled with the same policy pursued at Oreston, it is due that Windmill Hill Cavern, Brixham, holds the proud position of having first afforded recognised evidence of the great antiquity of man.

The deposits in Kent's Cave consisted of three distinct mechanical accumulations: the black mould, or uppermost, a layer of dark mud from three to twelve inches thick; the cave earth, a light, red clay with angular fragments of limestone separated from the black mould by a layer of granular stalagmite from an inch to over five feet in thickness; the Breccia, consisting of fragments of dark red grit "imbedded in a sandy paste of the same colour"; this was separated from the cave earth by a layer of crystalline stalagmite in some places close on twelve feet in thickness.

All the deposits contained the remains of animals. To quote Mr. Pengelly—

"In the black mould, or more modern deposit, the remains were those of species still existing, and almost all of them now occupying the district. They were man, dog, fox, badger, brown bear, *Bos longifrons*, roe deer, sheep, goat, pig, hare, rabbit, water-rat, and seal. In the granular stalagmite, black band and cave earth, and especially the last, extinct as well as recent animals presented themselves, the cave-hyæna being the most prominent, but followed very closely by the horse and rhinoceros. Remains of the so-called Irish elk, wild bull, bison, red deer, mammoth, badger, the cave grizzly and brown bears, are by no means rare; those of the cave-lion, wolf, fox, and reindeer were less numerous; and those of beaver, glutton, and *Machairodus latidens* were very scarce. In the crystalline stalagmite and the Breccia remains of animals were less uniformly distributed. So far as is at present known, they were exclusively those of bear. There were no bones of hyæna, and no bones fractured after his well-known fashion. Remembering his cavern-hunting habits, it may in all probability be safely concluded that the era of the crystalline stalagmite and the Breccia it covered, was prior to the advent of the hyæna in this country."

In the bottom of the deepest excavation and thence up through the ascending series of deposits were found flint flakes and implements. It may not be without interest to remark that the cavern exhibits to us more and more ancient men; it shows that they were ruder and ruder as we proceed into antiquity. The men of the black mould had a great variety of bone instruments; they used spindle-wheels, and made pottery, and smelted and compounded metals. The older men of the cave earth made a few bone tools; they used needles, and probably stitched skins together; but they had neither spindle-wheels, nor pottery, nor metals; their most powerful weapons were made of flint and chert, many of them symmetrically formed and carefully chipped; but it seems never to have occurred to them to increase their efficiency by polishing them. The still more ancient men of the Breccia have left behind them not even a single bone tool; their flint implements are rude and massive, show but little attempt at regularity of outline, and are but rudely chipped.

It will be noted that at Kent's cavern the feature of constant accessibility and occupation is dominant. Let me not be understood to suggest that there have been no breaches in the continuity.

The early history of man is carried back by the contents of this cave to a period antecedent to the British hyæna.

It was Colonel Hamilton Smith, however, who first recognised man as a member of the cave fauna. On his pointing out the upper portion of a humerus of man among a collection of bones from Oreston, its should-have-been fortunate possessor immediately threw it away. For long from that early date in the cave hunting around Plymouth no further human remains came under the observation of persons sufficiently honest to publish their existence to the world. At least sixteen distinct series of finds were made between 1816 and 1887 in caves, in fissures, and among fluviatile deposits, at Oreston, Deadman's Bay, the Hoe, Stonehouse, and Mount Wise.

In 1887, however, a cave was disturbed in the course of quarrying operations at Cattedown, which proved to be of extreme value as a geological find. The cave was comparatively small, as far as explored, consisting of two chambers each about 20 feet in length, the one some 8 feet, the other 5 feet, in width. Excavations were carried down to the rock floor of one chamber, but had to be stopped in the other on reaching a point below the tide level in Cattewater adjacent.

The deposits formed a descending series of stalagmite floor; stalagmitic Breccia, " concrete floor," and cave earth, all members of the series, were not everywhere present.

The stalagmitic Breccia yielded to no gentler persuasion than blasting, and it was purely heartrending to have to resort to this violent expedient, regarding the possible havoc played on fragile remains. The Breccia contained remains essentially representing the complete skeletons of the animals concerned: man, deer, hyæna, wolf. The cave earth below the Breccia contained no practically complete skeletons; hog was especially prominent, but cave lion and rhinoceros were present, also associated with teeth and bones of man.

Man and hyæna both appear to have been residents. The hyæna left proof of his active presence in the form of gnawed bones; man afforded evidence of his occupation in the presence of charcoal and a nodule of flint.

The remains of fifteen or sixteen human beings of both sexes and very various ages were found. Sufficient of the bones were recovered to practically represent every principal portion of the human skeleton. The race was a short one, averaging under five feet. The tibiæ were exceptionally flattened or platyenemic. No skull could be obtained intact, but the form can be definitely stated as orthocephalic. The teeth were exceptionally good, in many cases much worn, but with no trace of decay. Associated with the human remains were those of some five-and-twenty species of animals—rhinoceros, lion, hyæna, fox, badger, bison, urus, red deer, roe deer, hog, goat, &c.

The human remains are the most perfect and complete in this country that have yet yielded information as to the physical characteristics of the men who lived as neighbours with the mammoth, rhinoceros, and cave-lion. Dates, eras, or geologic periods are dangerous handling. Suffice it to say that the bone caves and fissures around Plymouth demand a fluctuation of the level of land of some hundred and twenty feet during their infilling. One which was a den lies by the present sea level; others, filled with apparently fluviatile deposits, lie some hundred feet above; everything points to a lengthened period, the nearest date in which would be vastly remote from our own time. The northern mammoth and man endured each other's society; the latter had already armed himself with flint, either to attack therewith his neighbours or to defend himself therefrom. The land was a sportsman's paradise, and probably a palæolithic man's purgatory. We talk of the stress of modern life: nerves would be more excusable if, back at the fore end of the ages, we were planted down to play hide-and-seek with Machairodus and pick bones with the cave hyæna. Beyond joke or quip there must have been good stuff in the human race that has lived to discuss its own survival from the horrors of pre-historic nightmare.—*Pharmaceutical Journal.*

Treatment of Alveolar Hæmorrhage.

By W. H. DOLAMORE, L.R.C.P., M.R.C.S., L.D.S.

DENTAL SURGEON TO THE LONDON HOSPITAL; ASSISTANT DENTAL SURGEON TO THE DENTAL HOSPITAL OF LONDON, &c.

SEVERE hæmorrhage after the extraction of teeth is a fairly common occurrence, and quite a number of cases are recorded in which, owing to the failure of the means adopted for its arrest, it has caused the death of the patient.

In most of the fatal cases, with the details of which I am acquainted, the chief method adopted for the arrest of the bleeding was to plug the tooth-socket. Various substances were used, sometimes with and sometimes without the addition of hæmostatics, but in each case one cannot fail to be struck with the fact that the recurrence of the hæmorrhage was coincident with the removal of the plug. If the plug could be left *in situ* for a sufficient period this would not result, but in many instances the plug is formed in whole or in part of an absorbent material, that becomes in a comparatively short time extremely foul, and is therefore removed. Then, too, the means that are commonly adopted for the retention of the plug, splints of plastic material, ligatures round neighbouring teeth, &c., with or without the use of four-tailed bandages to keep the jaws in apposition, are all temporary expedients which have soon to be removed or replaced, since they all interfere with the feeding of the patient, or are themselves interfered with during attempts at mastication.

Although the hæmorrhage is said to be sometimes due to a deficiency in the coagulating power of the blood, in all the cases of alveolar hæmorrhage I have seen there has been no apparent deficiency—indeed, blood-clots have clung to everything in and about the mouth, making a horrible mess. It seems, therefore, obvious that if the blood-clot could be retained in the socket it would form a natural plug, which need not be disturbed, and would become gradually replaced by organised tissue in the usual manner. It occurred to me that this could be readily effected by passing sutures from the gum on one side of the tooth-socket through that on the opposite side, and by tying these together as tightly as possible.

In the few cases in which I have been able to try this method it answered admirably. The clot was retained, possibly the threads hastened its formation, the bleeding ceased, and as the stitches held for several days their removal caused no recurrence of the hæmorrhage. Further, as in many cases there is a considerable laceration of the gum, and the alveolus is broken or removed during the extraction of the tooth, it is possible with the stitches to draw together the edges of the wound and to lessen its size considerably. These cases were all instances of recurrent hæmorrhage.

One I may specially mention. A man was sent down to the dental department of the London Hospital from the receiving-room, who stated that a molar had been removed two days previously, and that the gum had bled more or less continuously since. Some attempts, the details of which I forget, had been made to arrest the hæmorrhage, but with little success. His mouth, beard, &c., were hung about with blood-clot. As in some instances a root left loose in the socket apparently determines a continuance of bleeding, I examined the sockets with no other result than to increase the hæmorrhage. In order to prevent his sucking the wound, which is often a cause of delay in the cessation of bleeding, I propped open his mouth and let the blood trickle into a porringer, whilst the needle, &c., were fetched. In under ten minutes quite half a pint of blood had escaped, which clotted firmly. To endeavour to temporarily check this loss of blood, I placed pads of lint over the socket, letting the patient keep up pressure on these by clenching his jaws together; the effect was slight, yet no sooner was the gum over the socket stitched up than the bleeding practically ceased—indeed in half an hour, during which he sat with his mouth propped open, it had absolutely stopped, and this in spite of the wound being somewhat disturbed by his vomiting a quantity of the previously swallowed blood.

I have usually used a curved needle, which should be rather strong, for the gum is dense, and the needle is apt to strike against the opposite alveolar wall, or on loose pieces of broken bone. Horse-hair answers well for the sutures, but this again should be strong, and it is convenient to use long pieces. Two or three stitches suffice, each being passed through the gum on one side, then through that on the other, and separately tied.

In writing this note I do not wish to claim universal success, but it is a simple, cleanly method, and has answered so well that it may perhaps merit a more extended trial.—*Treatment.*

Editorial.

With Regard to the Future Dentist.

At this time of year, when our journals are accompanied by educational supplements, and when parents who have selected the dental profession as a career for their sons are looking for the schools to which they may most conveniently entrust their education, it may not be inappropriate to say a few words on the subject of dental training, and the increasing recognition of dentistry as an important factor in public health.

Mr. James Cantlie, in an exceedingly interesting paper read before the British Medical Association—a reprint of which we publish on another page—sets before us some very forcible arguments which go a long way towards proving that the early care or neglect of the teeth of children cannot fail to have its effect for good or evil upon the general physique of a nation, a fact familiar enough to our readers, but one which is, we fear, scarcely appreciated to its full extent by the public. It is encouraging, however, to observe the increasing attention which is being given to the matter, and we can scarcely, nowadays, take up a daily paper without noticing the interest which, as time goes on, more and more attaches itself to the work of the dentist. Thanks to the long-continued efforts of the leaders of our profession, of which the School Dentists Society is one of the latest developments, all classes of the community are being gradually brought face to face with the fact that the teeth are not infrequently the *fons et origo* of many hitherto mysterious ailments, and the cause, direct or indirect as the case may be, of much unnecessary and avoidable suffering. Thus dentistry is day by day occupying an increasingly important position in the eyes of that almost omnipotent abstraction, the "man in the street." The education, therefore, of the dentist is a matter which cannot be too seriously thought over, and the parent who marks out such a calling for his son should take the subject profoundly to heart, and seek well to find out whether or not his offspring possesses those qualities which go so far to ensure success in the profession, and without which he cannot hope for a prosperous career.

We need not enumerate the attributes which make for success in this as in other walks of life, but the one thing essential—and one which, we fear, is frequently overlooked—is a strong constitution. The daily work of our profession is such as to call for a large amount of enduring perseverance, and the exercise of a degree of patience which to the lay mind is almost inconceivable. The attitude of the operator at the dental chair is, as we all know, a fatiguing one; add to this the unremitting care, and the close attention to detail which are necessary for the conduct of all dental operations, and it can easily be seen that no other than a robust man can hope to find himself equal to the strain. The right kind of character can be cultivated — provided there is a foundation to work upon—by the right kind of training, but an insufficiently strong constitution is by no means likely to be improved by a course of study at a hospital. There are many instances, well known to us all, of men who in the heyday of success have broken down, unable further to sustain the burden of a busy practice.

As regards professional training, there is no doubt that great advances have been made in recent years; both in London and the provinces, and indeed all over the world, there are now to be found dental hospitals and schools fully equipped with all modern advantages, and numbering upon their staff-lists the names of men of eminence and accepted ability. Several new hospitals have within the past few years been built in the United Kingdom alone, and no effort has been spared in any direction to make the teaching as thorough and efficient as possible. The improvements in the methods of instruction in our modern dental schools are largely the outcome of the individual thought and care bestowed upon the subject by those amongst us who have devoted their energies to teaching. There is no lack of brains to plan, or experience to direct—teachers, students, methods there are in abundance; the one thing lacking is here, as often elsewhere, funds; but the bigger the obstacle the greater the effort needed to surmount it, and even in overcoming difficulties, as in all other things, "practice makes perfect."

Association Intelligence.

The Honorary Secretary of the Association desires to emphasise the statement he has on several occasions previously made, viz., that anonymous communications relating to cases of irregular practices, or alleged infringements of the Dentists Act, cannot receive from him that attention he would wish to bestow upon them, or they may deserve.

Central Counties Branch.

THE Hon. Secretary will be glad to hear from gentlemen who are willing to give papers or communications of interesting cases or methods of treatment during the coming winter. Meetings will be held in October, December, February and March. Particulars should be sent in within the next few days, and should indicate the most convenient meeting for them to be given at.

83, *Edmund Street,*
Birmingham.

A. T. HILDER,
Hon. Sec.

Western Counties Branch.

A MEETING of the Council will be held at the Atlantic Hotel, Weston-super-Mare, on October 7, at 3 p.m. Afterwards an informal meeting of members will be held. Members having any communications to bring forward are asked to send their names to the Secretary.

T. ARTHUR GOARD,
Hon. Sec.

Midland Counties Branch.

PRELIMINARY NOTICE.

THE autumnal meeting of this Branch will be held on Saturday, October 28, in Newcastle. Members intending to bring forward subjects for discussion, short communications, or give demonstrations, are requested to inform the Hon. Secretary without delay, so that adequate arrangements may be made and a full programme published in the next issue of the JOURNAL.

323, *Oxford Road,*
Manchester.

DAVID HEADRIDGE,
Hon. Sec.

Reviews and Notices of Books.

DENTAL MICROSCOPY. By A. HOPEWELL SMITH, L.R.C.P.Lond., M.R.C.S., L.D.S.Eng. Second edition, revised and enlarged. London: The Dental Manufacturing Co., Ltd., Lexington Street; Philadelphia: The S.S. White Dental Manufacturing Co., Chestnut Street.

IT is always satisfactory to find the right man in the right place, and all dental microscopists will probably agree that Mr. Hopewell Smith is the right man to compile a handbook on modern microscopy as applied to dental work. The author's original work during the past few years has marked him out as a valuable acquisition to the little band of active workers in this field of science, while his official position as a teacher affords him special opportunities. The book is excellent and considerably larger, and therefore more valuable, than the previous edition. The illustrations are drawn from photographs, an infinitely more valuable method for students than process reproductions, unless, indeed, both be given side by side. From the point of view of the original investigator, the drawings are not valuable as evidence, but as a teaching instrument they are absolutely necessary. The coloured frontispiece is exquisitely executed and throughout the book the author shows that he is an artist as well as a microscopist. It might be well in a future edition to expand the allusions to the histology and development of bone, for though Mr. Hopewell Smith disclaims all pretensions to producing a handbook of histology, it is more than likely that his book will generally be at the elbow of the wise student of that fascinating subject.

DENTAL MEDICINE, A MANUAL OF DENTAL MATERIA MEDICA AND THERAPEUTICS. By Ferdinand J. S. Gorgas, A.M., M.D., D.D.S. Sixth edition, revised and enlarged. Philadelphia: P. Blakiston, Son & Co.; London: J. and A. Churchill.

A sixth edition of this handsome book evidences an appreciative demand for a comprehensive work of reference, having the scope of Dr. Gorgas' well-known treatise on the special pathology and therapeutics of stomatology. While unfortunately it cannot compare in accuracy or completeness with the corresponding handbooks in the same departments of general surgery, it easily claims precedence in a somewhat barren field of English dental literature.

More than this we can hardly say of the new volume, which is rather in the nature of a reprint slightly revised than a thoroughly new edition.

The very few added pages comprise a rather inadequate chapter on cataphoresis, in which neither the *rationale* nor the *technique* of this form of medication is very satisfactorily dealt with. The rather loose statement that a voltage of from five to thirty cells is required (without even specifying the kind of cells), is the nearest approach we can find to any specification of so perfectly definite a thing as electric potential. Some glaring and misleading misprints also disfigure this section. Curiously, the essentials of cataphoresis were rather better described in the fifth edition (although the term does not occur), under the heading of electrolysis and voltaic narcotism, and this matter still stands in the new edition without the slightest reference to the now specialised classification under which it is also treated. In fact the notorious fault of this work, its repetitions and redundancies, we greatly regret were not ameliorated on the opportunity afforded by a new "edition."

The new remedies and medicines noticed are singularly few, considering the great developments in pharmaceutical chemistry during the last few years. Even those specially mentioned in the preface are mostly trivial proprietary preparations.

We are surprised at failing to find even in the indices (for the perplexing and wholly unnecessary blemish of two indices still survives) any mention of such well-established and definite drugs as airol, alumnol, di-iodoform, anestile, chinosol, erythrol nitrate, euphorin, exalgin, ferropyrin, formanilide, osmic acid, tannoform, traumatol, and many others. Even if these names are in certain cases trivial or trade ones, it is to such a book as this that one turns for their identification. Also it is, we think, singular that in a work especially taken up by a publishing firm in England, so far as we can discover the official pharmacopœias of the two great English-speaking countries are completely ignored, and their important differences at least not pointed out. For instance, in the fundamental matter of weights and measures, a British student relying on this as a text-book might be in perplexity or indifferent as to whether a pint contained 20 or only 16 fluid ounces. The deplorable confusion existing as to international constants of this kind can only be cleared up by the very plainest and persistent demonstration of the exact state of affairs. To calmly ignore or overlook them is worse than misleading.

Highly as we value Dr. Gorgas' manual, we should have gladly welcomed in this edition a more thorough revision in the direction both of condensation and strictly scientific accuracy and comprehensiveness.

INTERSTITIAL GINGIVITIS, OR SO-CALLED PYORRHŒA ALVEOLARIS.

By Eugene S. Talbot, M.D., D.D.S. Philadelphia: The S. S. White Dental Manufacturing Co.

A book dealing with the much-vexed question of the causes and treatment of pyorrhœa alveolaris is a work calculated to excite much controversy and to attract considerable attention, and the author has certainly succeeded in placing before us an attractive and interesting volume, giving evidence of much careful study and labour in its compilation. It cannot, however, be said to throw much light on the subject, and its perusal leaves one, so far as any real advance in the knowledge of this disease is concerned, in very much the same position as before.

In support of his adoption of the alternative title "Interstitial Gingivitis," Dr. Talbot brings forward some sound reasoning; in condemning the term "Pyorrhœa Alveolaris" he says, "It suggests erroneous etiology, since pyorrhœa implies that there must always be a flow of pus, and hence that the disease must always result from infection with pus microbes. It implies erroneous pathology and erroneous treatment for the same reason. This being the case, such a title is so dangerously misleading as to compel, in the present stage of dental science, its complete disuse."

The object of the book is explained in the following terms:—"The pathologic conception adopted in the present work anent interstitial gingivitis is, that the disorder is a local inflammatory condition of the gums, tending to accelerate their normal tendency to disappearance at certain periods of stress or involution, of which involution the changes produced by old age are a type."

As predisposing factors of the disease he advances the conditions of jaw evolution, the transitory nature of the jaws and all structures immediately appertaining to them, viz., alveolus, periosteum and gums, together with degeneracy, and conditions of previous irritations and inflammation. He appears also to attach great significance to the effect of trophic nerves as a predisposing cause, in face of the admitted fact there is no absolute proof of any *direct* trophic nerve influence. "Even after the alveolar process has developed its normal shape, so unstable is the nervous system which presides over these cells (osteoblasts) at this locality, that at the slightest provocation, either local or constitutional, they will continue their process of construction. Hence the frequency of hypertrophy of the process, and in disease the calcification of the peridental membrane."

The author's statement that he examined the faces of 10,000 passers-by, while standing on the corner of Piccadilly Circus and Regent Street, and found that 83 per cent. possessed jaws inside of the perpendicular line, is one which cannot fail to fill the reader with admiration for the performance of a work of such vast patience, coupled with so extraordinary a power of accurate and rapid observation. The statement on p. 34 that heat consequent on wearing a denture quickly causes absorption of the lime salts, is one which we can hardly accept seriously. The gruesome list of acids on p. 184, of which "uric acid seems to act least as an irritant," fills us with wonder that Pyorrhœa Alveolaris is so comparatively rare a disease.

With regard to treatment, Dr. Talbot advocates massage of the gums by means of a hard brush (the use of a soft brush is deprecated), the saturation of the gums with iodine, and flooding the system with large quantities of pure water, accompanied, of course, by the removal of all deposits and other irritants from around the teeth. Other, and well-established methods of treatment, such as the use of copper sulphate, or perchloride of mercury, are ignored.

The text is accompanied by a number of excellent microphotographs and drawings representing a large amount of time and trouble expended on original research. These are, we believe, the only published photographs (or, indeed, illustrations of any kind) showing the actual pathological changes in this disease, and as such are deserving of the highest commendation.

Obituary.

Ashley Gibbings, M.R.C.S., L.D.S.Eng.

Many of our members must have read, with no less surprise than pain, the announcement which appeared in our last issue of the death of Mr. Ashley Gibbings. Until within the last few months the picture of health and strength, there are few men in our profession who could have been pointed to as being a "better life."

Born in Devonshire in March, 1852, he early removed with his family to Chichester, being educated at Hastings, where he was considered a show pupil. In due course, he entered for the preliminary examination of the Royal College of Preceptors, of which he passed first of the candidates of the whole of the United Kingdom; he then went up for matriculation at the University of London, passing in the Honours division.

Originally intended for the law, his own selection pointed to dentistry as the profession of his choice, and he was accordingly articled to Mr. Haslar Harris, at the same time becoming a student of King's College, where he obtained a Wharneford entrance Scholarship of one hundred guineas, and subsequently several of the class prizes; the College ultimately conferring the distinction of its Associateship upon him.

In 1870 he entered the Dental Hospital of London, at that time in Soho Square; here he gained the prizes in Metallurgy and in Dental Anatomy.

Obtaining the M.R.C.S. in 1873, and the L.D.S. in the same year, and passing the primary examination for the Fellowship just previously, he was elected House-surgeon to the Dental Hospital of London in 1874, the year of its removal from Soho Square to its present home; and it was largely due to his judicious arrangements that the transference was achieved without the work of the hospital being interrupted for a single day.

For some time he was in practice with Sir Edwin Saunders and Mr. Forsyth, ultimately purchasing the practice of Mr. Holborow King in Stratford Place.

In 1877, appointed an Assistant Dental Surgeon to the Dental Hospital of London, and a member of its Committee of Management, he served the Institution in the dual capacity with equal advantage to the patients, students, and his colleagues.

On the retirement of Mr. Hamilton Cartwright Mr. Gibbings was appointed Dental Surgeon and Professor of Dental Surgery in King's College, his old medical school and hospital.

Joining the Odontological Society, Mr. Gibbings was for many years a regular attendant at its meetings, though he but rarely took part in the discussions. In due course elected to the Council of the Society, he subsequently filled the post of its Honorary Librarian for some years, and on his retirement was made one of the Vice-presidents for London, being afterwards nominated by the Council for its President, an honour which his failing health compelled him to decline.

One of the early, if not indeed one of the original, members of our Association, he attended many of its Annual Meetings in London, Edinburgh, &c., being a member of the Representative Board for two successive periods, and serving the Association for many years as one of the Committee of the Benevolent Fund, in which he took a keen and active interest. To the Fund and to the Dental Hospital he was a generous benefactor, as well as to the Masonic and other charities.

Of a manly, vigorous nature, he had a keen love for field sports, and in his later years devoted much of his spare time and energy to golf, of which he was a very proficient exponent. His happy genial nature won for him "troops of friends," and one who knew him intimately for nearly thirty years could hardly remember to have seen his temper ruffled in the least.

Early successful in practice he soon relinquished his hospital appointments, holding the view that private interests should never be permitted to interfere with public duties.

Although possessed of considerable intellect, his ample brow giving great character to his face, yet he was in no sense a man with a mission, and probably never greatly desired to lead his profession, believing, as he often said, that improvement could only come slowly and in its own time. Nevertheless, he was ever ready with sound advice when his opinion was sought on questions connected with its policy, but he was impatient of all pretension, and had but little sympathy with specious or radical short cuts to perfection. In his home, with its handsome old oak carving much in keeping with his solid Tory opinions, his friends will long remember him the genial host that he was; large minded, large hearted, a staunch friend and a thorough Englishman!

This brief memoir can hardly be more fittingly concluded than by quoting the words of Orlando, which he was very fond of applying to himself, viz.:—

"Sir, I am a true labourer;
I earn that I get, get that I wear,
Owe no man aught,
Envy no man's happiness.'

Annotations.

THE Guardians of the Strand Union have apparently been making an effort to secure the services of a dentist in connection with St. Charles' School, Brentwood. We learn that at a recent meeting a letter was read from the Local Government Board with reference to a proposal made by the guardians to pay 2s. per annum for each child with this object. The letter was to the effect that the Local Government Board considered it the duty of the managers of the school to see that the children's teeth were properly looked after, and that the cost of such supervision should be included in the general charge paid by the guardians for the maintenance of children. A copy of the letter was to be forwarded to the School authorities. We wish the guardians every success in their laudable endeavour to ensure health and cleanliness among the children entrusted to their charge, and we hope that their good example may be followed in all directions.

THE name of Professor Robert William Bunsen, who died at Heidelberg on August 15, is familiar, we feel almost safe in saying, to the whole civilised world. If only for the invention of the burner which bears his name we all feel that thanks are due to him; but it was in connection with the discovery of spectrum analysis that he became universally celebrated. He was, moreover, known as an indefatigable inventor and an accurate experimenter, and as a teacher of great skill. His life was devoted to original scientific work, in which he achieved a measure of success such as few men live to attain. He died at the great age of 88, unspoiled by success, peaceful and contented, loved and honoured by a host of pupils and friends, and leaving behind him a name which, in the world of science at least, can never be forgotten.

ON another page will be found a list of recent contributions to the Dental Hospital of London in aid of the Building Fund. All members of the British Dental Association are naturally interested in the growth of the dental educational centres throughout the kingdom. The necessity for increased facilities for dental education shows the advance of dental surgery in a very practical manner. We have received a letter from the Secretary, calling attention to the claims of the Hospital, and earnestly asking help in the work which it carries on. The following passages from the letter which we quote will place the position of affairs clearly before our readers:—

"While admitting that the calls upon the public for London hospitals are large, and generously responded to, I am sure that, if the position of the Dental Hospital were better understood, there would be no difficulty in raising a sufficient sum of money annually to enable the Committee to continue its usefulness.

"The present Hospital has been enlarged to its utmost extent, and being still inadequate both in accommodation and sanitation for the ever-increasing number of patients who avail themselves of its benefits, it has become absolutely necessary, if the work is to be carried on efficiently, to build a new hospital.

"This building is now well advanced on a very suitable site in Leicester Square, almost adjoining the present Hospital, and it is hoped will be completed about the end of next year. But, to place the Building Fund in a satisfactory position, it is most important that a sum of £3,000 should be raised for the current year, and the Committee earnestly appeals for help towards this object.

"Through circumstances connected with the parish authorities and the London County Council, the Committee has been compelled to begin building instead of waiting, as had been intended, until more money had been collected.

"The Committee feels deeply the great responsibility which has been thrown upon it, but looks forward with confidence to that continued support and encouragement from the public, without which the work cannot be brought to a successful completion."

AT the last moment on going to press, we are asked to state that Mr. J. Camps, who has officiated at the Dental Hospital of London, Leicester Square, in the capacity of hall-attendant for more than eighteen years, is resigning the post, on account of advancing years. His courtesy to the staff, students, and patients has been such as to gain for him the highest respect of all, and it is proposed to recognise his long years of usefulness by a testimonial. It is certain that many old students will be happy to acknowledge his services to them, and participate in this mark of esteem to "Camps." Subscriptions will be thankfully received and acknowledged by the Curator (Mr. W. E. Fletcher).

Miscellanea.

Death under Chloroform.

A correspondent sends us the following cutting from the *Staffordshire Sentinel* of August 22 :—

"The Borough Coroner (Mr. Joseph Knight) held an inquest last evening on the body of Ann Rowley, a married woman, who resided at Audley, at the establishment of Mr. Shields, dentist, No. 1, Brunswick Street.

"Agnes Taylor, wife of Allen Taylor, Chapel Street, Audley, who is cousin to the husband of deceased, was the first witness. She stated that deceased was suffering from neuralgia and she invited her to accompany her to Newcastle to have some teeth out. She said she was going to have chloroform. Dr. Vernon had been attending her for a long time, and she intimated to witness that she had asked him to go with her in order to administer it. Witness consented to do as requested, and had consequently come to Newcastle with Mrs. Rowley that morning.

"John Vernon, surgeon, practising at Audley, described the visit of deceased to him. He advised her to have a few teeth taken out at a time, without any anæsthetic at all. She, however, expressed a preference for chloroform, so that she could have all her teeth done at once. In pursuance of this desire, she saw Mr. Shields, and arranged to go to Newcastle at a quarter to ten on Monday. Witness likewise came in accordance with promise. He stated that the usual preparations were made, and that he examined the heart of deceased prior to administering the chloroform and found it perfectly sound. The anæsthetic was at the proper temperature. Deceased was sick twice, but she went under its influence quite satisfactorily. Mr. Shields then extracted a number of teeth from the lower jaw. Witness applied a little more anæsthetic, after which the dentist extracted the upper teeth with the exception of two. At this stage deceased was under chloroform so far only that it was found desirable to give her a little more. After breathing about twice, he felt Mrs. Rowley's pulse, and found it had stopped. They cleared the blood and mucus from her mouth and tried the usual remedies, injection of ether, &c., but she showed no signs of recovery. Further medical assistance was called. Concluding, witness said not more than one ounce of chloroform was used altogether. This was the best obtainable—Duncan, Flockhart and Co's.

"In reply to a juryman, the doctor said many vomited—some more, some less. Answering a further question, he said he would not use chloroform except for a general clearance of this kind. There were from eighteen to twenty teeth to be drawn, many of them decayed and broken up.

"The coroner said the doctor's evidence seemed very clear, and the jury expressed themselves satisfied.

"A verdict in accordance with the evidence was returned."

International Dental Congress of Paris, 1900.

The Congress will take place in Paris from August 8th to 14th, 1900, under the patronage of the French Government.

The Congress, organised at the initiative of the National Dental Societies, continues the custom inaugurated by the International Dental Congresses of Paris, 1889, and Chicago, 1893, and forms part of the Official Congresses to be held during the Universal Exhibition.

The admission fee is 25 fr. (£1). Members are entitled to all the advantages of members of Official Congresses.

Members wishing to make communications are requested to give notice to the Secretary-general three months before the opening of the Congress. They should forward him at the same time the titles of their papers, together with an abstract of their contents.

The Congress will be divided into several sections.

(1) Anatomy, Physiology and Histology.
(2) Special Pathology and Bacteriology.
(3) Operative Dentistry and Special Therapeutics.
(4) General and Local Anæsthesia.
(5) Prosthesis, Orthopædic Dentistry and Facial Restoration.
(6) Teachings and History of the Dental Art.
(7) Legislation, Jurisprudence and Ethics.
(8) Hygiene, Public Dental Services.

The business of the Congress will comprise:—

(1) Communications: these will be of two kinds:—(*a*) Those selected in advance by the Committee of Organisation. (*b*) Those chosen at will.

Communications will be in French, English, German, Russian, Italian, or Spanish; abstracts should be in French.

(2) Practical demonstrations (operative and mechanical dentistry, and exhibition of new instruments).

Applicants for membership must—

(1) Possess a legal right to practise in their native country.

(2) Exercise their profession honourably, *i.e.*, withhold themselves from all advertisement, or all conduct contrary to professional dignity.

(3) Be accepted by the National Committee of their native country (if one exists), or by the Organisation Committee.

Persons not engaged in the practice of dentistry may be admitted by the Organisation Committee on special application.

Applications for membership, communications and requests for information should be addressed to M. le Docteur, E. Sauvez, Sécrétaire Général, 17, Rue de St. Petersburg, Paris.

Subscriptions to M. Viau, Treasurer, 47, Boulevard Haussmann, Paris.

Dental Hospital of London—New Building Fund.

The following contributions of £5 and upwards have been received since those previously announced in the Journal:—

John Fairbank, Esq.	£100	0	0	J. C. Oliver, Esq. (to complete £10 10s.)	£5	5	0
W. H. Richardson, Esq.	50	0	0	Francis Rogers, Esq.	5	5	0
Lt.-Col. Windsor Clive	50	0	0	L. de Rothschild, Esq.	5	5	0
George Wallis, Esq.	20	0	0	Hotel Employés Agency	5	5	0
A. W. M. Bosville, Esq.	10	10	0	Sir Abernethy Burrows, Bart.	5	5	0
Morgan H. Young, Esq.	10	10	0	Peter Reid, Esq.	5	5	0
T. B. Kersteman, Esq.	10	10	0	E. C. Haggerston, Esq.	5	5	0
Fritz Reiss, Esq.	10	10	0	Miss Phillips	5	5	0
R. Chadwick, Esq.	10	10	0	W. de C. Prideaux, Esq. (to complete £10 10s.)	5	5	0
T. V. H.	10	10	0	The Rev. J. Langton Clarke	5	0	0
D. A. Bevan, Esq.	10	10	0	Nigel M. Smith, Esq.	5	0	0
C. E. Broughton, Esq.	10	10	0	Henry Westrow, Esq.	5	0	0
Mrs. R. H. Woodhouse	10	10	0	B. M. S.	5	0	0
A Grateful Patient	10	10	0	Lord Rothschild	5	0	0
Miss Storer	10	10	0	Henry Eley, Esq.	5	0	0
T. M. C. A.	10	0	0	Charles Parke, Esq.	5	0	0
London Football Charity Committee	5	5	0				

The late Mr. Ashley Gibbings has bequeathed £100 to the Hospital in addition to £200 which he generously contributed during his life.

NOTE.—ANONYMOUS Letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 26, Wimpole Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

Subscriptions to the Benevolent Fund to the Treasurer, A. J. Woodhouse, Esq., 1, Hanover Square, W.

All contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 26, Wimpole Street, W.

Journal of the British Dental Association

No. 10. OCTOBER 16, 1899. VOL. XX.

Original Communications.

The Etiology of Dental Caries.

BY J. SIM WALLACE, M.D., B.SC., L.D.S.ENG.

THERE is fortunately much unity of opinion as to the nature of caries, and the following definition by Dr. Miller sums up what is currently accepted. He says, "Dental decay is a chemico-parasitical process consisting of two distinctly marked stages, decalcification or softening of the tissue, and dissolution of the softened residue. In the case of enamel, however, the second stage is practically wanting."

Mr. Tomes makes the following summary: "That caries is an effect of external causes, in which the vital forces of the individual play no part.

"That it is due primarily to the solvent action of acids generated by fermentations occurring in the mouth, micro-organisms playing no small part in the causation of those fermentations."

"That once a breach being made by decalcification, others, or it may be the same organisms, take an active share in the further disintegration, partly by a peptonising action upon the organic basis of the tooth, and partly perhaps by boring through and breaking up the softened dentine."

Bearing in mind what caries is, we may next proceed to consider the conditions under which it takes place.

A variable number of micro-organisms are always present in the mouth, which being a moist warm chamber richly supplied with food might almost be compared to a well devised incubator in which the micro-organisms multiply. At some places, *e.g.*, in the hollows of, and spaces between, the teeth, these micro-organisms are liable to be present in considerable numbers, and in these places too a certain amount of the food which was intended for the stomach is liable to lodge, together with epithelial cells, salivary mucus, and *débris* from various sources. When food and micro-organisms are left together in the mouth fermentation is set up, the numerous products of which are given rise to. The products of the oral micro-organisms vary both with the kinds of organisms and with the nutritive media in which they live. In general, if they live in an albuminous medium the products are those of putrefaction, and give rise to an alkaline reaction. In a saccharine, amylaceous, or mixed medium, acid products are the result. When acid fermentation takes place and a certain percentage of acid is formed in the medium, the further production of acid is retarded and ultimately stopped when the percentage of acid reaches about ·75.

Although the products of the fermentation caused by micro-organisms are numerous and diversified, our chief consideration at present is with regard to the generation of acid, for although the various products of fermentation affect the gums and soft tissues of the mouth, and under certain conditions of depressed vitality may give rise to diseases, local and general, I intend to limit my remarks at present to those products which have a solvent action on the teeth.

Attention must be drawn to the action of the micro-organisms upon the various food stuffs which are consumed by man. 1. *Albuminous food stuffs or proteids.* The action of the mouth bacteria upon these is such as to give rise to the products of putrefaction with an alkaline reaction. They have consequently no solvent action on the teeth, and indeed neutralise to a certain extent the acids with which they may come in contact. 2. *Fats.* The action of the mouth bacteria upon fats, as far as is known, is practically nil. 3. *Carbohydrates* (starch and sugar). The result of the chemical decomposition by the micro-organisms of the mouth on this group of food-stuffs is the production of acids, chiefly lactic, and various other by-products which act but slightly and indirectly upon the enamel. They will be referred to later. The action of lactic acid is well known. It dissolves the mineral matter of the enamel and dentine whenever it reaches a certain degree of concentration. All enamel is subject to its decalcifying action when it reaches a certain strength. It may be assumed that the rapidity of its action may be greater in badly formed enamel, though no definite experiments have as yet shown that badly formed enamel is more rapidly dissolved than that which is well formed. From a chemical point of view, the mineral matters consumed as food have no effect upon the teeth.

That it is the carbo-hydrates in certain forms which give rise to caries of teeth receives support not only from the facts revealed directly, and from experiments on fermentation of those substances under conditions similar to those which prevail in the mouth, and from observations and experiments in the mouth, but also from observations which show that races which subsist largely on proteids and fats are peculiarly free from caries, *e.g.*, Esquimaux, Maoris, Icelanders. I have also found among my own patients that those who like meat, fish, and fat in preference to carbo-hydrates almost invariably have relatively good teeth, while those who are more addicted to sugary and starchy foods are, as a rule, predisposed to rapid and extensive caries. (This is a general statement, and other causes and modifying conditions will be referred to later.)

Caries is invariably initiated by the acid formed by the action of micro-organisms upon the carbo-hydrates which lodge after each meal in crevices and spaces between the teeth, and is continued in similar manner, the decalcified part acting as a more perfect receptacle for carbo-hydrates and micro-organisms. The micro-organisms when in the decalcified dentine also give rise to the destruction of its organic basis. The rate of the destruction of the tooth substance varies principally with the supply of carbo-hydrates to the micro-organisms in the carious cavity. If the orifice of the cavity is such that the supply of carbo-hydrates is but small, the carious action is slow, and if, for example, the supply should be practically cut off, as by the extraction of a neighbouring tooth whose position previous to extraction was such as secured a regular supply of carbo-hydrates, the decay will cease altogether. There are other circumstances which exercise an influence on the rapidity of caries, such as the acidity or alkalinity of the saliva, the perfection of the calcification of the teeth, &c., but these are of little importance.

The several conditions which predispose to caries may now be considered.

Firstly, the physical properties of the foodstuffs are of considerable importance. Certain foodstuffs, as a rule, on account of their physical properties, lodge about the mouth, others do not. This may be easily seen by eating a biscuit or a piece of cake and observing how many particles lodge in crevices, while fibrous foodstuffs, *e.g.*, stale bread, fish or meat are not so liable to lodge. This statement is made with a reservation, for in many mouths where the teeth have taken up abnormal positions, and especially when they have been imperfectly filled, teeth are particularly liable to catch these fibrous foodstuffs. As regards the common sites of caries in molars, meat, fish and fibrous matter generally are less liable to lodge on the crown than baked foods, especially those which are "short." I have made some six hundred experiments to endeavour to find the foodstuffs which are more apt to lodge, but I do not care to place any too definite stress on the results, as the crevices examined were somewhat abnormal, inasmuch as they had been filled, and so did not represent the normal shape of the teeth. However, the experiments show that cake, biscuits, bread, especially toasted bread, are very liable to lodge from one meal to another, while raw vegetables, fruit, meat, fish, were by no means so apt to remain. There was one place, however, the crevice formed by the neck of the lower wisdom tooth, the edge of the gum and the fold of mucous membrane of the cheek, which was more liable to retain fish and meat. This position is, however, compared with the crowns of molars, a relatively infrequent seat of caries. The reasons for this will be more fully accounted for if we consider the chemical composition of food.

There are some foods which from their physical properties appear to clean the teeth, while others tend to leave a coating over them. Soft, non-fibrous foods which do not require to be chewed, especially those with much sugar, leave the teeth with a coating in those parts which are least rubbed by the tongue and cheeks. This is easily noticed by observing the state of the teeth after eating, *e.g.*, chocolate or other kinds of soft sweets, or even milk puddings. I have not been able to arrive at a conclusion as to whether the viscidity of the saliva and oral mucus tends to augment this; possibly it does.

There are some races which eat largely of fish from certain rivers which contain much fine sand; the effect of this on the teeth is to wear down the crowns, and yet these races are practically free from caries; for instance, some North American Indians. So also, races which subsist largely on roots, which, as they prepare them, are not only fibrous, but gritty from the earth which they cóntain, have teeth practically free from caries; for example, Kaffirs. It is noteworthy, too, that when sugar is obtained by sucking and chewing the sugar-cane, no harm seems to be done to the teeth, probably on account of the cleansing action of the fibrous part of the sugar-cane, and on account of the sugar being free from mixture with matter which tends to lodge in the crevices of the teeth.

The physical properties of fats in acting as lubricants to the foods taken with them are probably of some importance. I have made numerous observations which seem to me to indicate that the relative freedom from caries among people who eat much fat is out of all proportion to what one might expect if one considered fat as neutral in its action on the teeth. Nor do I think that we can account for this freedom from caries in fat-eaters by the fact that these people may eat relatively less carbo-hydrates.

That eating of fat is not conducive to caries, if it is not positively inimical to it, has been proved by experiment by Dr. Miller, independent of any observations I have made, and it may further be mentioned that races which subsist largely on fats are peculiarly exempt from caries, *e.g.*, Icelanders and Esquimaux, &c., and lastly, generally speaking, caries is less frequent and less rapid in people after the age when they begin to eat more fats.

The physical and chemical properties of the secretions of the mouth probably exercise some influence on the causation of caries. The saliva, though normally faintly alkaline, is frequently neutral or slightly acid, and sometimes viscid.

This viscidity and chemical reaction may to a certain extent be due to the by-products of the micro-organisms which are fed and incubated in the mouth. In some cases, for example in fevers, the influence of the buccal secretions and general state of the mouth is marked, and much harm may result to the teeth, but this is perhaps principally due to the kind of food taken during such illness rather than to the peculiarity of the secretions; one of the most certain methods of inducing caries being to sip constantly at liquid foods, and to dispense with the use of the tooth-brush. The presence of micro-organisms in numbers is also a condition that favours caries. It has been shown that, when carbo-hydrates are lodged in a dirty mouth, the rapidity with which acid is produced, and also the quantity, are very much greater than if the mouth had been previously cleansed with tooth-pick, tooth-brush, &c. On the other hand, certain foodstuffs which have been sterilised by boiling are much less liable to give rise to acid than when unsterilised. Thus milk which has been boiled may remain in the mouth for many hours without giving rise to much acid, while unboiled milk rapidly develops acid fermentation when lodged in the mouth.

The length of time which elapses between meals seems to have some influence on the initiation and rapidity of decay. Millers as a rule have carious teeth, which is probably due to the continual breathing in of flour dust, &c.; so, too, have cooks and confectioners, who frequently taste the foods they are preparing.

Some kinds of meals are undoubtedly more harmful than others. Afternoon tea is as a rule very injurious to the teeth. The infusion of tea is in itself harmless, but the milk, the sugar, and the bread and cakes are all very harmful, especially when taken with a liquid which enables the consumer to take the meal with very little exercise to the jaws. After such a meal as this the mouth is left in a very excellent state for the development of acid, and for the multiplication of the millions of micro-organisms in the mouth. All sloppy meals, such as are often prescribed for invalids, are seen to leave the mouth very much more dirty than meals which require much chewing. Liquids, when taken with food, are harmful when taken to soften the food, but when taken in quantity, especially after meals, are of considerable benefit in checking the formation of acid, as they mechanically cleanse the mouth and dissolve some of the carbo-hydrates which would otherwise have lodged in the mouth.

The microscopical and chemical structure and composition of the teeth is often said to be a predisposing cause of caries, but there is little to support this theory. Generally speaking, the molar teeth, which are most highly calcified, are most liable to decay. (Black, Tomes.)

The idea prevalent that in localities where there is little lime salts in the water the teeth are imperfectly calcified, and more liable to caries on that account, has no basis on statistical data. The degree of calcification of a tooth in no way influences the production of acids by micro-organisms and carbo-hydrates. After caries has started, however, an ill-calcified tooth may probably be slightly more rapidly decayed than one which is more perfectly calcified, as the acid-forming micro-organisms have a more easy prey.

There are several conditions which favour the lodgment of food and micro-organisms about the teeth. The natural crevices of the teeth themselves are liable to retain many of the foodstuffs which are commonly consumed at the present day. If a mouth be examined in which the teeth have all been filled at regular short intervals by a dentist, it will be readily seen how faithfully caries originates and progresses in these crevices. It will be noticed in examining such a mouth that the fillings are invariably in such places as are protected from friction by the tongue, by the cheeks, or by the opposing teeth. Thus the rounded surfaces next the tongue or cheeks, or the cusps which occlude with opposing teeth, are practically never the seat of caries, but the crevices between the cusps, or the crevices or pits on the surfaces of the teeth, are invariably the sites of the fillings. Not only is this so, but the caries extends at first as a rule in the direction in which the crevice runs. Thus in the lower molar teeth the filling should be shaped like a cross +, the dentist thereby not only removing all the decayed matter, but also filling in the whole of the crevice with a filling material which is not acted upon by the food and micro-organisms which may lodge. If the fillings are not made to fill the crevices, but only a circular filling made when the caries is removed by the dentist, the result is generally that in course of time the tooth becomes carious in the crevice at the sides of the filling, and decay proceeds till the filling or the tooth is lost.

So, too, fillings are frequently seen on the approximal surfaces between the front teeth, and a broad smile or a laugh by a person with such fillings is sufficient to show the food which lodges in these situations after every meal. If attention is now drawn to the lower front teeth it will very generally be found that these are not filled and do not require filling, because, on account of their shape and the arrangement of the gum and the action of the tongue in dislodging matter between the teeth, or causing a current of saliva to pass between them, food does not lodge there and undergo acid fermentation. This fact is the more remarkable as these teeth are not so highly calcified as the molars, and should, according to most of the current theories on the causes of caries, be the most liable to be attacked. When the crevices or pits in teeth are abnormally deep the tendency for food stuffs and micro-organisms to collect is augmented, and the liability to caries is greater. Teeth are, however, fortunately seldom what may be called abnormal in shape, so that this is only occasionally a predisposing cause of caries. The arrangement of the teeth among themselves is, however, a very general cause of the lodgment of food about the teeth. A normal set of teeth is so arranged that food, at least coarse food, is but little liable to lodge, but unfortunately few people have a regular set of teeth. When the normal relation of one tooth to another is broken it becomes a task of very much greater difficulty to prevent the lodging of food, especially between the teeth, and all the precautions which will be mentioned later for the prevention of caries must be carried out much more thoroughly than is necessary when dealing with a regular set of teeth. It happens that to a great extent the conditions which are favourable to the development of caries are similar to those which favour irregularity. In general, when the temporary teeth are well used by properly masticating reasonably hard, dry, coarse and fibrous foods, they remain sound till they are naturally shed. Moreover, when the teeth are honestly put to perform their natural function, the jaws grow, and so give sufficient room for the taking up of the normal positions of the permanent teeth.

There is an unfortunate belief which seems to be current that the jaw of man is not normally large enough for the teeth; that in fact, in the transition from the large-jawed savage to the small-jawed civilised man, the jaw has diminished in size more rapidly than have the teeth. This appears to be based on the fact that the teeth of bulldogs are crowded and large relative to the jaw. Of course in the case of dogs the effect of artificial selection is confined to what is shown externally. In the case of man, however, even though a small-jawed individual may be presumed to be more beautiful and, *cæteris paribus*, more liable to be preserved and have offspring, equally, however, are small teeth regarded as beautiful and might be supposed to be equal factors in sexual selection.

The relative sizes of the teeth and jaws have little to do with æsthetic considerations, and indeed the wisdom tooth has diminished in size much more quickly than has the jaw. The principal reason for the want of growth of the jaw is the fact that it is not sufficiently used, and does not develop to its normal size. The crowns of teeth, however, being fully formed as regards size beneath the gum before they are functionally active, the size of the teeth is independent of the amount of use they are put to by the individual. Hence a quick transition from coarse food to soft food in one generation brings about a crowded and irregular set of teeth, and an accompanying amount of dental caries. The cause of the smallness of the jaws compared with the teeth may easily be shown to be due to the non-development of the jaw-bone through lack of the proper amount of work being thrown upon it.

The exceedingly bad results of feeding children on soft foods after they have got their temporary teeth may be indicated by tracing what happens as a rule in these circumstances. A child gets its temporary teeth, and assuming even that they are not decayed, the teeth of the permanent set replace the incisors, then the bicuspids displace the temporary molars, and the second molar coming into place presses forward the first molar, as the jaw has scarcely expanded enough to let it form and take its position. Then at the same time the canine, which forms deep in the jaw-bone, tries as it were to take up its normal position, but it is naturally crowded out. The result is an irregular set of teeth, and, the soft foods being continued, caries is started in some of the spaces where food is so very apt to lodge ; one or more teeth become carious, and further tend to make the patient stop masticating his food and so cleansing his teeth in a natural manner. Two or three years probably elapse, during which the mouth is crammed with micro-organisms and liberally supplied with food for acid fermentation.

When such a course of events takes place we need hardly be surprised if a few of the teeth fall a prey to the acid developed. What usually takes place, however, is that the temporary molars are lost before their successors are ready to take their places, and so the first permanent molar slips still further forward. The space in the jaw available for the twenty front teeth is made still smaller, and the evil results are augmented.

The above is but a rough indication of a cause which leads indirectly to the irregular position of the teeth and consequent lodging of food and micro-organisms resulting in caries. As children of the same family are usually brought up on similar food, and their tastes are more or less alike, caries is commonly more pronounced in some families than in others, and as the initial causes are so remote and difficult to trace, there is a popular impression that the tendency to caries is constitutional. Caries is also for similar reasons supposed to be hereditary, but strictly speaking it is not. It is invariably acquired from external influences, and is never inherent.

Another circumstance which gives rise to conditions favourable to the lodging of food is recession of the gums. When this takes place the space formed by the gum, the buccal side of the teeth, and the buccal mucous membrane is increased, and food is apt to lodge. The spaces between the teeth are also increased by the recession of the gums, and food is more liable to lodge here too. It is principally on this account that these are more commonly the sites of caries among adults, and less frequently in childhood and adolescence. The wearing of artificial dentures is also a frequent cause of caries by lodging food-stuffs and micro-organisms about the teeth. In this respect metal plates are more objectionable than vulcanite, inasmuch as they are never made to fit sufficiently closely to prevent the lodgment of some food, and are generally held in place by bands which clasp the teeth, and destroy them quickly or slowly according to the amount of food which accumulates about the bands. Vulcanite plates held up by metal bands are harmful in the same way, but may, however, be made to fit so accurately when worked from a plaster impression that bands are as a rule unnecessary.

Lastly, there are indirect causes which render the lodgment of food and consequent caries liable to occur. Most important of all is the fact that many people are careless in the use of means to clean the teeth, using neither tooth-pick, brush, nor powder, either from ignorance, carelessness, or laziness. During many illnesses the lassitude which they induce often gives rise to a certain amount of negligence which is not wholly natural to the patient. Hence during illness or pregnancy this cause acts more pronouncedly than at other times.

The prevalent erroneous beliefs that caries is hereditary, that it is constitutional, that it is due to civilisation, all tend to make people careless, and cause them to leave their teeth to fate, or at the best, to their dental surgeon. Fortunately caries is no more constitutional than smallpox or measles, no more hereditary than frost-bite or tattoo-marks. All are the result of external causes. Nor is civilisation strictly speaking a cause of caries. But upon the subjects of heredity and civilisation I intend to dwell more fully at a future date.

A Method of Regulation.

BY W. F. FLOTE.

THE patient, a girl now 13 years of age, first visited the London Dental Hospital in 1897. She had at that time four six-year-old molars, but these were not extracted until the twelve-year-old molars were erupted, which took place in March of the present year. Patient called again on April 12, when an ordinary regulation case was made with pianoforte wire, for the bicuspids of the left side, and a hickory peg was employed for the lateral of the right side. This apparatus was worn until the beginning of May, but it had very little if any effect, and must be described as unsuccessful. It then occurred to me to construct a vulcanite case, with a crank worked by a spiral spring attached to the centre of the denture, in order to push the right upper lateral—which was inside the lower teeth when the mouth was closed—into its proper position in the dental arch. The two bicuspids on the left side had to be brought back to permit the left upper canine taking its right place in the arch. I fitted to them a half round wire provided with a slot, which enabled this wire to slide to-and-fro. Attached to this were two spiral springs, one on each side, affixed to the vulcanite denture. A glance at fig. 1 and fig. 1A, which exhibit the denture both on and off the model, will easily explain the method.

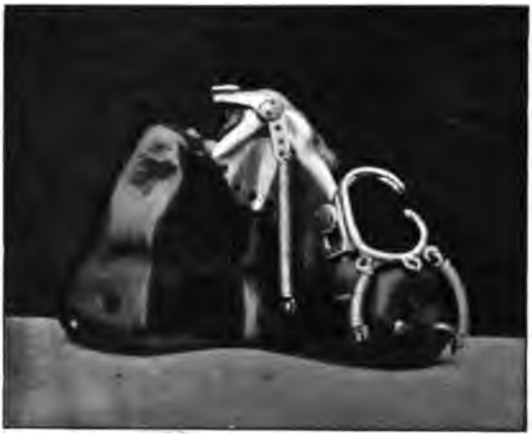


FIG. 1.

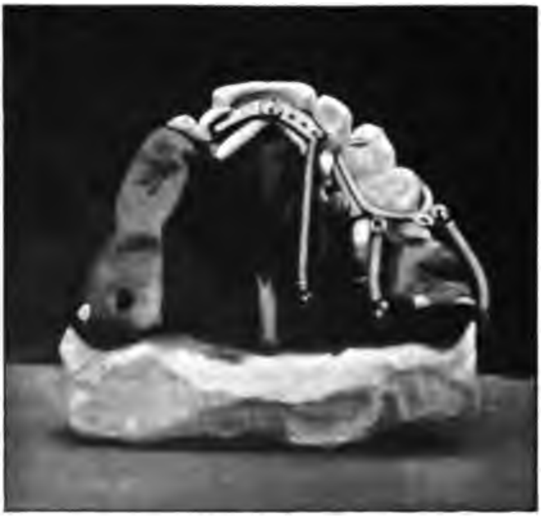


FIG. 1A.

Fig. 2 shows the model of the mouth as it was before regulation. Fig. 3 pictures the patient's mouth as it appeared after having worn the case for *four weeks.*

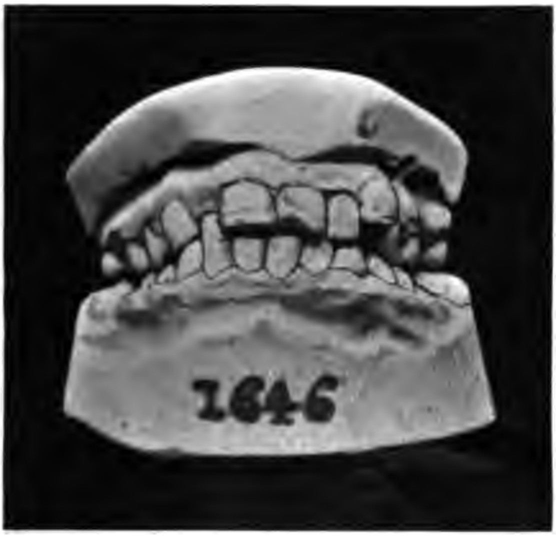


FIG. 2.

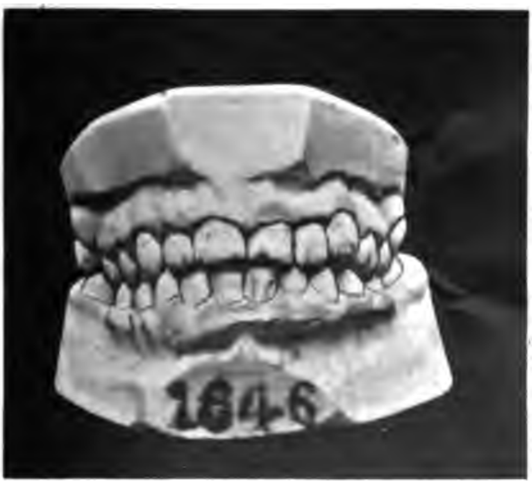


FIG. 3.

It occurs to me that this system would be useful in cases of superior protrusion, and in the case before us it did its work admirably, without the least discomfort to the patient, and without any ill-effects to the teeth so dealt with. It may be pointed out that the action of this apparatus is continuous, one denture suffices, and it is perfectly self acting.

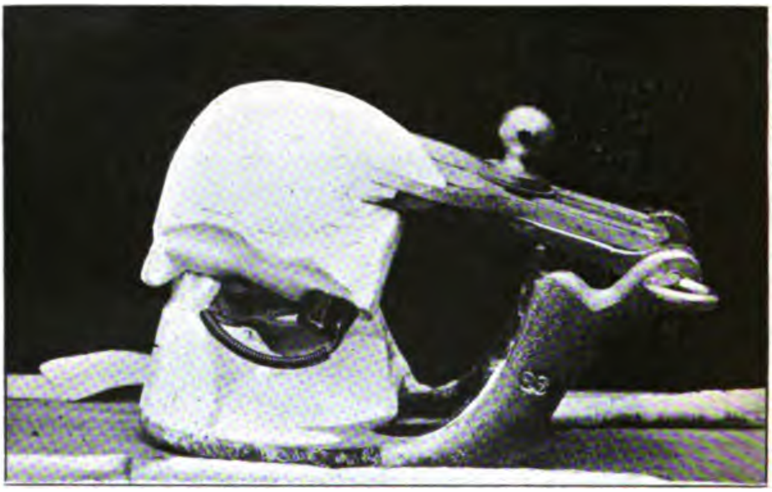
The only difficulty was in the construction of the separate parts of the apparatus.

Prosthesis of the Mandible.

READ BEFORE THE ANNUAL MEETING OF THE WESTERN COUNTIES BRANCH, JULY 21, 1899.

By T. TAYLOR GENGE, L.D.S.I.

Mr. President and Gentlemen, — Morbid growths requiring extensive operations for removal of large portions of the inferior maxilla are fortunately of comparatively rare occurrence; so that although we are from time to time called upon to exercise our mechanical ingenuity to replace by artificial means portions of the superior maxilla which have been removed by the surgeon, it is but seldom that this occurs with the lower jaw. This being so, I thought a few notes of a case which has recently been under my observation would prove interesting to the members of our branch.



The patient, a married lady, aged about 30, was sent to me by Mr. Morton, of Bristol, who had six weeks previously removed all that portion of the lower jaw on the left side behind the second bicuspid, the temporo-maxillary joint being disarticulated. The operation was occasioned by a myeloid sarcoma, which involved the ramus and posterior part of the body of the mandible.

When I first saw the patient there was considerable facial deformity, caused principally by the remaining portion of the jaw being drawn over to the left side by the muscles attached to it, so much that on examining the mouth I found the left central incisor articulating with the second upper bicuspid. This condition rendered mastication impossible; therefore we made it our aim to bring what was left of the jaw into its normal position, and thus correct the articulation.

On referring to the literature of the subject I found a similar case described by McBurney in the *Annals of Surgery*, 1894, and decided to adopt a modification of the apparatus recommended by him. In his case, however, the jaw had been resected at the level of the canine tooth. In order to gain room, I therefore found it necessary to extract the left second lower bicuspid, which was now the end tooth on that side. I then crowned the first lower bicuspid and the second upper molar on the same side, and to each of these crowns I attached a gold pin to carry a spiral spring of such strength as would overcome the action of the muscles, which were pulling the jaw into its abnormal position.

As it was essential to have as long a spring as possible, so as to allow the patient room to open the mouth, the upper pin was placed at the back of the crown and the lower carried forward by a piece of plate to the position of the canine. There was some difficulty in determining the necessary strength of the spring; and although McBurney states that he estimated this by means of a delicate spring balance, not having such an instrument I had to find this out by experimenting with springs of various strengths.

The result was most satisfactory, the facial deformity being corrected, and the patient's powers of mastication restored to a great extent.

I regret not being able to show you the patient, being a private case, but have models to illustrate what has been done.

The Use of Binding Wire in the Application of the Rubber-dam.

By WILLIAM M. GABRIEL, M.R.C.S., L.D.S.Eng.

Few of the difficulties which confront the dental surgeon from time to time are more harassing than the apparent impossibility of satisfactorily applying the rubber-dam in many cases where its use appears to be indispensable from the need of absolute dryness. Chief among such are mesial or distal cavities (especially in the lower jaw) extending at the cervical edge far below the gum. Often, after one or two visits, at which careful filling with temporary gutta-percha has reduced the interstitial gum tissue to the level of the cervical edge of the tooth, the real difficulty begins.

It is found that no matter how tightly or carefully a silk ligature be tied round the tooth, it is impossible to carry the rubber over the cervical edge or to retain it there. After a little reflection, however, it is not difficult to see how this trouble arises.

It is comparatively easy to push the gum away between the teeth to almost any extent, but this is not the case with that covering the external and internal alveolar plates. The consequence of this is that the gum margin assumes an irregular line, and the ligature—silk or such like—which like the rubber assumes, when taut, a straight line—fails to follow this. I here endeavour to make my meaning clearer by means of fig. 1.

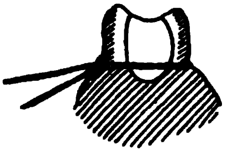


FIG. 1.

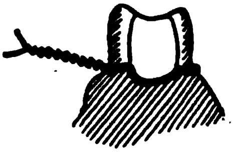


FIG. 2.

For some considerable time past I have successfully overcome this by using, instead of silk, binding wire, twisting it up with pliers instead of tying. This can be easily pushed into position with a blunt instrument carrying the rubber before it, and will maintain its shape in a most satisfactory manner. (*Cf.* fig. 2.)

I have used also a thicker binding wire in ordinary distal cavities when they happened to be situated in the last tooth in the jaw, the free ends left after twisting being bent and utilised to hold the rubber-dam away from the back of the tooth.

I have no hesitation in stating as my firm belief that often the power of excluding saliva and securing absolute dryness, or the contrary, may mean the retention or loss of a valuable tooth or root.

Presidential Address.

DELIVERED AT THE ANNUAL MEETING OF THE MONMOUTHSHIRE AND SOUTH WALES BRANCH.

By J. C. OLIVER, L.D.S.

My first and pleasing duty is to congratulate the members of the profession in South Wales on the *esprit de corps* and the professional zeal which prevails among them, as evidenced by the fact that nearly every one has joined the British Dental Association.

I must next thank you all for the good-will and kind appreciation which you have shown in electing me as first President of the South

Wales and Monmouthshire Branch. May all future occupants of this chair have so loyal, united and active a body to preside over as I have to-day, and I moreover trust that as the motive which brought us into the Association was that we might be in touch with all that is loyal and best in the profession, and that we too might contribute our help in council and war, I trust that our existence as a branch may ever be characterised by the same high motive, and especially for its practical labours in advancing the usefulness of our calling.

Perhaps no profession has of late years made greater advance in knowledge and in practice, and at the same time obtained such public appreciation of its benefits, as that of dental surgery, for not long ago dentistry was an ignorant craft practised by ignorant men, whose want of knowledge was equalled only by their unscrupulousness. In those days the conservative treatment of teeth was unheard of, except by a very few people. Now that dentistry has become an exact science, and the law has provided that those who lawfully practise it shall know it exactly, the public have learnt to trust and appreciate it, and to adopt it. Again, whereas formerly the dentist was the most dreaded "bogeyman," to-day he is looked upon as the friend, the deliverer from suffering, and the maintainer of health.

And this brings me to what I regard as the true and highest ideal of dental practice, viz., the care of children's teeth. In the old days people only visited the dentist when they were in pain, when disease had half destroyed some solitary tooth, and when all the engineering and surgical skill of the dentist was requisitioned to save this tooth, and you know the process; how visit after visit was paid, and much labour bestowed in the attempt, and perhaps in the end the sick member had to be sacrificed. This was "conservative" dentistry in the dark ages, not long ago. To-day, although there may be far too much time given to the propping up of fragile teeth, general enlightenment and common sense have taught us that prevention is better than cure, that infinitely greater benefit is given and derived by the treatment of decay in the early stages rather than in the late.

Dentists, I fear, often pride themselves on having built up some elaborate filling in some out of the way part of the mouth, expending their time and strength on some tooth soon doomed to failure by virtue of its own inherent weakness. Such cases do not deserve the exhaustive labour spent on them. In my opinion persons who have so far neglected their teeth as to allow them to reach so advanced a stage are more benefited by the lesson taught by their loss.

While of course we do not discourage the saving of all that can be restored to usefulness, yet, as a general rule, our efforts should be directed persistently to treating teeth whilst they are still strong. In order to do this it must not be left to the patient's sense of pain, but inasmuch as in general caries is the result of defective structure of the tooth, and consequently is more or less evident so soon as the tooth is erupted, the only correct or successful system of warfare against the ravages of dental caries is to universally insist on the necessity for the *periodical inspection*, especially of children's teeth, beginning at the age of 6, the period at which the permanent set begin to make their appearance, to so long as they may require it.

The one thing essential in order to make the dental profession what it ought and might be in usefulness to society, is not so much increased skill in the treatment of teeth, as a right direction and application of that skill. In order to effect this, two things are necessary: firstly, the profession itself must recognise and give due importance to the system, and secondly, the public must be taught the advantages to be gained by its adoption. That the profession is advancing in this direction is evidenced by the inauguration of a society called the Society of School Dentists, bringing into prominence the fact that this care for the teeth is, or ought to be, part and parcel of education. Several books have recently been written upon the subject for the use of the public, notably one compiled by Dr. Pedley. The South Wales Dental Society, of which many of us are members, has also published a pamphlet having for its object the instruction of the parents in the care of their children's teeth. All these efforts of societies and individuals show that this subject is being regarded as of prime importance.

When we consider the advantages of an early and systematic treatment of the mouth, how it saves child life from the pain of toothache, with its injury to health, how it ensures perfect mastication during the period of growth, and how it provides the best guarantee for a healthy constitution in future years, we almost wonder at the apathy and lack of perception on the part of parents, who allow to let slip so many and great advantages for those whom they love and cherish. I am sure that if common knowledge on this subject were widespread, parents would not begrudge either the trouble or the expense which such systematic attention entails.

In America dental hygiene is given a first place in the code of instruction in all schools, with this remarkable result, that no other nation in the world places such value on their teeth or takes such pains to preserve them. In fact all classes of society there recognise the necessity. What the English people want is the same enlightenment, the same common sense, and the same practical business-like adoption of what they know to be right and best.

Every year public knowledge and enlightenment increase upon this subject, and it will greatly depend upon the strong convictions of the leaders of the dental profession, how soon the day shall come when every child shall have his dentist as every child may have his doctor when sickness requires it.

Facts as to the universal requirement are sufficiently patent; the evils resulting from neglect cannot be exaggerated, whilst the remedy is simple and efficacious. It only requires that this knowledge of accepted facts should be widely spread in order to bring about the general adoption by the masses of the benefits of conservative dentistry.

Candidates for many of the Government appointments are required to pass a strict examination as to the condition of their teeth. Large numbers are annually rejected from the army, navy, and postal and telegraph services because of the inefficiency of these organs of mastication. And what is regarded by the authorities as unfitting them for the *national* service is surely a great disability to the individual and a loss to the community in any other path of usefulness. But if in place of the Government being so strict in their examination of candidates (and wisely so too), they were to enact that all children should from the time they go to school to the time of leaving it, have the care of the qualified and skilled dentist, then all would be fit for the services, the nation richer, and the people healthier and happier.

Gentlemen, as a new branch of the British Dental Association, we might well take as our watchword and inscribe on our banner as our motto, "Care for the Children's Teeth."

Civilisation, to a large extent, is the cause of the great deterioration in the quality of teeth, and as civilisation advances the evil will become more pronounced. Forecasting the future one can only come to this conclusion. That society will have to defend itself against the rapidly increasing tendency to tooth destruction by the general adoption of protective measures is certain. Let us individually work to this end, let us be united as a body of experts upon the subject, and we shall always have the satisfaction of being in the forefront, in the advance ranks of dental science.

Thirteenth International Medical Congress, Paris, August 2-9, 1900.

The Thirteenth International Medical Congress will meet in Paris from August 2-9, 1900. This Congress will have a Section of Stomatology to which shall be admitted all French and foreign doctors practising this special branch.

The officers of the Organising Committee are:—President: Dr. Pietkiewicz; Vice-Presidents: Drs. Cruet and Gaillard; Secretary-General: Dr. Ferrier.

N.B.—All communications or questions concerning this Section should be addressed to the Secretary-General, Dr. Ferrier, 39, Rue Boissy-d'Anglas, Paris.

Abstracts and Translations.

Susceptibility and Immunity to Dental Caries.

READ BEFORE THE NATIONAL DENTAL ASSOCIATION, AUGUST 1, 1899.

BY G. V. BLACK, M.D., D.D.S., Sc.D., LL.D., CHICAGO, ILL.

THE questions of susceptibility and immunity to dental caries have not had the amount of consideration by dentists that their importance demands. It has seemed to me that it is time now that the serious discussion of these subjects be undertaken, and this short paper is intended only as the introduction of it for that purpose. My presumption is that many years of study will be required for its proper elucidation. Caries of the teeth is and has been so common, and our people are so generally afflicted, that most of us have seemed to regard it as common to the human race, and that practically all are afflicted. Certainly, so nearly all people, in this country at least, have caries of their teeth to some extent that this general proposition would seem to be correct. Yet there are a sufficient number of exceptions to this general rule that every one who has been long in practice has noted—persons who have been wholly immune during a long life. In the past this immunity has been attributed to some superior quality of the teeth of these persons. The teeth themselves have been regarded as more perfect in their structure and richer in lime-salts, and the supposition has been that on this account the teeth have been able to resist decay under conditions which would destroy teeth of less perfect structure.

Recent investigations that have been conducted by myself (*Dental Cosmos*, May, 1895) and by Dr. J. Leon Williams, of London (*Dental Cosmos*, March and April, 1897), have shown that this was an erroneous opinion, and that caries is not dependent upon the quality of the teeth as to their structure or their perfect or imperfect calcification. These facts have been so clearly set forth, the studies by which they have been determined have been so complete, and their publication has been so recent that a reiteration of them at the present time seems unnecessary. They show that all human teeth are so nearly the same in their calcification that differences in the effects of acids upon the lime-salts of the teeth of different persons are practically *nil*. They show that in physical structure there are wide differences in the teeth of different persons, both in the enamel and dentine, that while the teeth of some have enamel which is practically perfect in all its parts, the teeth of others present grave imperfections of physical structure, in that the developmental grooves are imperfectly closed, leaving fissures, pits, and openings of various sorts and shapes in its substance. Also that the dentine of some is very perfect in physical structure, while the dentine of others has many interglobular spaces in its substance, and presents granular areas in which there is much of physical imperfection. They show, further, that these physical imperfections in the teeth are in no proper sense a cause of caries of the teeth; that among persons wholly immune to caries these imperfections of structure are proportionately as frequent as among persons whose teeth decay. That even where the imperfections of the enamel are such as to form cavities in its substance reaching to the dentine no decay has occurred during a long life. They show, indeed, that these imperfections can at most only give greater opportunity for the action of the cause of decay when this cause is present and active, and have no further relation to that cause. Therefore teeth which present the worst faults of structure may not decay, and will not decay in persons immune to caries ; while teeth of the most perfect physical structure will succumb to caries in susceptible persons.

In making these statements I do not forget that the studies upon which these conclusions are based are recent (though a goodly number of the facts are old), that they are opposed to the ideas that were held previously by most persons in the profession, and that many have yet great difficulty in accepting them as conclusive. While I have much sympathy with these latter, I shall not now stop to argue this point further than to say that the facts are physical in their nature and capable of accurate demonstration, and have had this demonstration. It should be remembered that physical facts, when once reduced to laboratory forms and ascertained, remain permanent. Granite is hard as compared with other substances. It may present degrees of hardness, but no process of demonstration or reasoning can remove the fact that granite is hard. It is precisely the same with the facts I have been stating. They are physical facts, and must stand. It should be remembered further that most of the advancements made in medicine and surgery within the last half-century have been due to laboratory demonstration. Very few diseases come to be understood until their investigation has been reduced to laboratory methods. From the very nature of things this must be true, and must remain true of most pathological conditions. One might as well undertake the study of anatomy merely by looking at the outside of the man, as to try to make out a diseased condition without the aid of laboratory methods of study. It is by the use of laboratory methods that we arrive at accuracy in the explanation of the meaning of groups of symptoms and are enabled to diagnose conditions accurately.

Heretofore the profession had been looking to the teeth themselves for the answer to the question as to why some teeth decay and others do not. The facts stated above show that this was an error. In caries the teeth are acted upon. They do not themselves act in the premises. The agents acting to produce decay are outside of the teeth, and must be found in their environment. We know already very accurately what the active agents are, and can follow their action in detail in laboratory demonstration and fix all of the principal facts in their order of occurrence. The active agents are certain micro-organisms that during growth produce lactic acid, which in contact with the teeth dissolves their lime-salts; and then the micro-organisms enter the tooth-structure and gradually destroy the organic substance, breaking down the whole fabric. This was fixed by the work of Dr. W. D. Miller, of Berlin, and, while other facts regarding this process may be developed, there is not the slightest probability that these facts will be materially modified by future studies or demonstrations.

But in all of this we fail to find an answer to the questions of immunity and susceptibility of the teeth of individuals to caries. The cause which is so active in some individuals is inactive in others. The reasons for this difference in persons have not been reduced to demonstration. That the difference exists is a clinical fact, observed and noted by every practitioner of considerable experience. We have also learned some collateral facts which influence the action of the cause of caries in a marked degree. As yet these are all clinical in character, and have about them all of the uncertainties of purely clinical data.

Observations already made render it certain that caries of the teeth has its beginning only when the conditions of the oral secretions are such that the micro-organisms causing caries form gelatinous plaques, by which they are glued to the surfaces of the teeth. This process seems necessary to the first starting of the process of decay, and until a cavity is formed by which the micro-organisms can enter the tooth-structure and be so protected as to prevent in a large degree the dissipation in the fluids of the mouth of the acid formed by them. It is well demonstrated that the whole saliva never becomes sufficiently acid to act upon the teeth, and that so long as micro-organisms have no protection from the dissipation of the acids they form they cannot produce caries. The formation of gelatinous plaques by which they glue themselves to the surfaces of the teeth and cover themselves in accomplishes this protection until a breach has been made and the micro-organisms have entered the tooth-structure. This is well shown by the confinement of the beginnings of caries to certain selected points upon the teeth where micro-organisms may act with the least disturbance, whereas if the whole saliva was sufficiently acid to act, the teeth would decay all over, instead of at selected points of beginning.

The formation of gelatinous plaques by caries fungus does not occur in every mouth, though the organisms may be growing. They do grow in every mouth, though no decay may occur. The formation or the failure of formation of gelatin seems to depend upon something in the saliva, the nature of which is as yet unknown. In growing the caries fungus artificially it can be made to form gelatinous material or to grow without forming it at will, by certain manipulations of the culture medium. Yet the nature of these changes is not such as to give a clue to what may be the changes in the saliva which favour or hinder its formation. Indeed, this matter is so delicate that it is almost impossible to make two samples of broth in which there will not be differences in the disposition to form gelatine during the growth of caries fungus. I would not, however, have it understood that any and every gummy material found in the mouth or about the teeth is the gelatinous plaques of caries fungus, for other micro-organisms may also form gelatinous masses. The gelatinous plaque of the caries fungus is a thin, transparent film that usually escapes observation, and which is revealed only by careful search. It is not the thick mass of *materies alba* so frequently found upon the teeth, nor is it the whitish gummy material known as sordes, which is often prominent in fevers, and often present in the mouth in smaller quantities in the absence of fever.

The effect of these studies and the propositions which logically follow is to divert the search for those factors which predispose persons to caries of the teeth from the teeth themselves, where they were previously looked for, to the surroundings of the teeth, or the oral fluids and the bodily conditions which give character to the secretions. The teeth themselves are the most unchanging of the tissues of the human body, while the secretions perhaps are the least constant, and are affected by the slightest causes. For this reason, fluctuation, rather than constancy, in the intensity of the action of caries is to be expected.

Susceptibility to disease and predisposition to disease are terms which are so closely allied that they may well be used interchangeably, though in certain phases of the meaning of the words a slight difference may be recognised. A person predisposed to disease is susceptible to disease, but a person may become susceptible who has not previously been disposed to disease. Susceptibility is a present condition ; predisposition is something that has existed before.

I shall speak of these subjects from the standpoint of a somewhat strict family practice of forty years in one locality, in which, while there were many families that were permanent residents for the entire period, there were also many accessions from widely different portions of the country, and not a few from foreign countries. It being also an educational centre, I had the observation of many young people temporarily during their school life.

With our present knowledge it may be stated that the susceptibility to caries of the teeth is influenced by heredity, by the age of the person, and by fluctuations of bodily condition.

Influence of Heredity.—I suppose the hereditary predisposition of certain families to caries has been so generally observed that it will not be questioned, and only needs mention. In the practical consideration of cases as they are presented to us when we have the care of families of children the hereditary predisposition to caries is of first importance. When the family remains in one locality, the children living under conditions similar to those of the parents in their childhood, the susceptibility to caries will be very similar in the great majority of cases. This will hold good even to the particular teeth and localities first attacked, the order of occurrence of cavities, and the particular age at which they occur. In some of my families the first cavities in parents, children, and grandchildren were in the proximate surfaces of the upper incisors, discovered first at the age of 11 to 14. In the majority of families the first cavities were in the occlusal surfaces of the first molars. I had other certain families in which in the parents, children and grandchildren the first cavities were in the proximate surfaces of the upper bicuspids, occurring at the age of 15 to 18. In these the observation has been personal for the children and grandchildren, but in some cases elicited by inquiry for the parents. Over and over again decay of particular teeth occurs at a given age in parents and children. In some families it will occur a little earlier in the children, in other families a year or two later.

In those who have been changing residence, or in families that have changed their manner of life, there has not been the same close similarity, particularly as to the time of life of the beginning of decay of the teeth. It has been noted particularly in families from European countries that there have been complete reversions in which parents who were practically immune have presented to me children that were very susceptible to caries. I have noted, however, several instances in which this was reversed, so that very susceptible parents from foreign countries presented children who were insusceptible. In those cases in which there are great differences in the susceptibility of the father and mother there are likely to be sharp differences in the susceptibility of the different children to caries, some following the one parent, some the other, though in the majority of instances it seems that the inheritance is from the more susceptible parent. This observation would indicate that the predisposition to caries was rapidly increasing, and yet my observation, taken as a whole, does not warrant this conclusion. The teeth of the generation growing up now do not decay so badly as did those of the generation of my early practice. These two statements seem incongruous. They are certainly both true. But it is also true that by better treatment latterly caries has been more closely confined to early youth, and its intensity has been diminished. The rule is that the hereditary predisposition to caries disappears with the coming of adult age.

The Influence of Age.—Caries of the teeth is, in its most practical aspects, a disease of youth. My observation of persons who have no filling done is that very few of them lose any considerable number of teeth from caries, the beginnings of which have not occurred before the age of 20 years. The actual loss from caries of most of the teeth will occur later, and in many cases the intensity of the carious process will seem to be increased later, but the beginnings of nearly all the cavities have occurred early in life. In cases of great intensity of the carious process the teeth will practically all be destroyed, and at an earlier age, the greatest intensity occurring anywhere from 18 to 22 or 23.

The effect of early radical treatment by filling in the milder cases, and also in many of the more severe, is to change this order in such a way that at the time of life at which caries would be making its worst ravages, from 20 to 30 years, *the person becomes immune.*

This immunity relates to the beginnings of carious areas rather than to the progress of cavities that have begun. Yet in many cases the immunity extends to the stoppage of many, sometimes all, of the areas of decay which have started. This immunity to the beginning of carious areas is a feature of the abatement of the susceptibility to dental caries which must not be lost sight of in any consideration of the subject. Caries that has started and become fixed in the dentine will progress though the conditions may have become such that no beginnings of new cavities will occur. This feature of caries becomes very prominent when a large number of cases are closely followed with records that will distinguish primary fillings from refillings in cavities where fillings have failed. It becomes still more prominent when the filling is so done from the beginning that there will be no refilling. From the number of persons in whom immunity has occurred in my own practice I conclude that this ought to become the general rule in cases in which the primary fillings have been permanent fillings. My observation in this matter includes many persons in families in whom the hereditary conditions were of the worst form. It includes cases where both parents had had much decay in their youth, and when caries had begun in the children in the same teeth, the same localities in the teeth, and at the same age as it had in the parents. But in the children, instead of increasing in intensity, there was an early abatement of susceptibility, and fewer cavities occurred than in the parents. A part of this was due to better care. But again, this better care was due to the better conditions attained, which rendered the better care possible. By better methods of operating the teeth were kept in full and natural use in the mastication of food, and had the natural abrasive action of the excursions of food over their surfaces and the surfaces of the gums about their necks with its effect in natural cleaning. This had its salutary influence, and I regard this preservation of the complete and free use of the teeth in the mastication of food without hindrance from lodgments about the teeth or from pain as the most important element in bringing about an early abatement of susceptibility to caries.

At first glance this influence would seem to be local only, but it seems to me that there is a general influence as well; an influence which reacts in a general way, producing a better condition of the secretions and of the cellular elements of the whole person. But the principal factor is to preserve good conditions and maintain healthy, vigorous employment of the teeth, and thus be ready for and encourage that immunity which comes with adult age.

Continuance of Hereditary Predisposition.—In a few families the hereditary predisposition to caries continues into middle and advanced age. These may usually be known by getting the history of the parents and the grandparents, noting where possible the character of the operations they may have had for relief, and dividing the primary fillings from refillings. There are so many cases in which persons are continually having cavities refilled when fillings fail that unless the refilling is eliminated and only new cavities of decay considered we are likely to be deceived and to regard the case as one in which the predisposition to caries is continuing, when, as a matter of fact, no new decays have been starting for many years. When the filling has been so done that there will be no refilling, the cases are easily made out. This should be closely looked to in all such examinations, if we would obtain a correct view of the future probabilities in the children we are to treat.

A case in point I will relate as illustrating this class of cases. A little girl, aged 12 years, came into my hands with cavities in all of the first molars. The molars and bicuspids of the father were wrecked so badly by caries that I had removed them and advised that artificial teeth be not substituted for the time, throwing the whole effort of mastication upon the incisors and cuspids, which at that time presented only a single primary cavity. The mother had had much filling done, also confined to the molars and bicuspids. None of it had stood long, and decays were then starting in several of the incisors, both upper and lower, at the age of 31 or 32. Both of her parents (the grandparents of the child) had lost their teeth from caries.

This made up a wretchedly bad history for the little patient that attracted my attention strongly even at that time, which was early in my practice ; and I may say that I made special effort to conduct her case well, an interest that I never lost. In the lower first molars the pulps gave trouble and were lost three years later, and in about fifteen years the crowns of these teeth broke down. Other than this she has never lost a filling. Her fillings make a long list on my record books. First the occlusal surfaces of the molars and of the bicuspids ; then the proximate surfaces, all of them, one by one ; then the buccal surfaces and several lingual surfaces. At the age of 34 the first proximate decay occurred in the upper incisors. At the age of 45 all of these and the proximate surfaces of the cuspids had cavities and were filled in turn. And the last were the labial surfaces of the incisors. I have never seen a mouth that was naturally more cleanly, or one that was better cared for by the patient than this one. In form the teeth were fine, long, and bell-crowned, with excellent alignment and occulsion. The whole denture was ideal. The patient was practically never out of health. She led an easy life, but a life of fairly keen interest in her friends and surroundings. She married late and has no children.

And yet with this history new decays were starting persistently. It is the most marked case of the persistence of the tendency to caries upon my records. In this case there never was a time that caries was allowed to run on to such a degree as to increase susceptibility because of the presence of troublesome carious cavities, except very temporarily with the lower first molars. At all times the patient could chew her food comfortably and take proper care of her teeth. The slowness of the occurrence of cavities was in marked contrast with some other cases in which cavities occur in all of the teeth almost as rapidly as they appear through the gums. It is the persistence in the beginning of decay in group after group of localities in regular succession to which attention is called, and it is that which marks the case as bad in its general character.

In another case presenting a similar history upon the side of the father and grandfather on the father's side, but something approaching immunity in the family history of the mother, a little girl, aged 8 years, presented cavities in the occlusal and mesial surfaces of all of the first molars and proximate cavities in the upper incisors. Other cavities occurred in the teeth taking their place later, almost immediately they were in position. All of these were filled as soon as they were discovered. No temporary fillings were employed for more than one or two weeks. Mastication was never hindered ; there never was a refilling, and now, at 20, a condition of immunity seems to be fairly established. This immunity was the object sought, and which should be sought in every case. In a case of such grave predisposition to caries as this to resort to temporary fillings that in themselves are not as radical as is required for permanent ones is almost equivalent to losing the fight. Fillings of such a character that caries will recur, or of such forms of contact points, shapes of interproximate spaces that lodgments will occur, or any conditions limiting the use of the teeth in mastication, will allow the persistence of caries, increase its intensity, and delay the coming of immunity; while the opposite condition of freedom from progressive caries, the maintaining of perfect contact points, freedom from lodgments, and continuous, full, free, and effective use of the teeth by favourable reaction upon general bodily conditions, diminishes the susceptibility to caries and hastens the coming of the condition of immunity. In such a case half-hearted operating is of no use. The filling must be well done in every particular. The cutting of cavities must be full and free, with the proper extensions for prevention. All decay must be removed completely, the fillings so seated and the retention sufficient that the fillings may withstand the force of mastication ; and, finally, the gold must be so well packed to the walls and margins as to prevent leakage absolutely, and be made sufficiently dense and hard.

In the ordinary cases presenting medium intensity of the carious process the same results are obtained with greater ease to both patient and operator. But this result is easier because less effort is required. The effort should be of the same quality throughout our practice with children. Note particularly that it is for children that the most perfect operating is required.

In cases of milder types of susceptibility, in which the beginnings of decay are fewer in number and the progress slower, the coming of immunity with increasing age is more certain, and the detail of operations, while more or less exacting, is easier carried out, because it brings less of wear and tear to the patient. Especially it is easier to maintain the full, free, and efficient use of the teeth. My observation is that a failure of vigorous mastication delays the coming of immunity seriously. In families where I have succeeded in this in cases of medium hereditary susceptibility, immunity is usually ushered in with adult age. Relapses of short duration occasionally occur, but are easily managed.

Can Permanent Fillings be made for Children?—On the question of making permanent fillings for children I have been sharply criticised.

The contention has been in part that teeth that have only lately taken their places in the arch are not sufficiently strong in their calcification to receive permanent fillings. That this contention is wrong is firmly answered by laboratory examinations, which show that the calcification is so complete that in this respect no difference should be made between the teeth of children and the teeth of adults. Clinically the answer supports the practice and adds diminished susceptibility in its favour.

The contention has been in part that the peridental membranes are not sufficiently strong to bear the necessary force. As to this, I often see these same children crack nuts upon these teeth which when placed in the dynamometer show that a force of from sixty to one hundred pounds or more has been used. I should never use more than forty pounds in the operations, and but rarely more than twenty-five pounds. Then again, it is said that the pulps are still large in children's teeth, and there is more danger of approaching too close to them in forming cavities. This is correct, and corresponding care and judgment must be used.

Will the courage and endurance of the child suffice for these operations? This is the point upon which more depends than all else, and the one which will prevent permanent operations being undertaken in some cases otherwise favourable. Yet this difficulty may generally be overcome by judicious management. If proper means are employed the endurance of the child will generally be sufficient. *But whatever else is done, or left undone, the courage of a child should never be broken down by overtaxing its endurance.* To do this practically ends the fight in failure. Precisely the same should be said of the nervous system of the child. These should be looked to with the greatest caution. Generally both may be maintained and the necessary operations properly performed, but not always. Cases will come to us in which this seems to me impossible. In such the cases must be tided along by palliative and temporary treatment at any risk until better conditions can be had. *One should never attempt permanent fillings under conditions which render perfect work impossible.*

The worst forms of cases that come to us are those in which caries has made such progress that the teeth are already practically out of use in mastication. In these cases the peridental membranes will be so sensitive to pressure as to render permanent operations impossible. There is no other course open but palliative and temporary treatment until full use of the teeth in the mastication of food is restored and the peridental membranes have recovered their normal condition. Nothing else than the full, free use of the teeth will restore the tone of their membranes. When this is accomplished and the teeth are again in full vigorous use, the operations should be proceeded with without delay. This applies to all patients, adults as well as children.

Fluctuations in Susceptibility to Caries.—The acute observer of considerable experience may readily observe that in all of the milder types of the tendency to caries of the teeth fluctuations are occurring between susceptibility and immunity. Persons who have had a number of cavities develop and had them filled go on for a time, it may be for several years, with no new cavities starting, and then suddenly a new crop of cavities begins. This new susceptibility may continue for a time, and the patient will again show immunity. This may be repeated at intervals. I have noted this kind of fluctuation so frequently in my own practice that I feel that I cannot be mistaken about it. Also in the literature many cases have been cited in which persons have passed a number of years without new decays, when suddenly the teeth were found decaying rapidly. These I believe to be instances of the same fluctuations between susceptibility and immunity that I have myself observed.

A case in point is this: A little girl, aged 14, had a number of cavities. These were filled, and during the next three years a number of new cavities occurred. Then immunity seemed established. No fillings failed, and no new decays occurred until she was 28. Then several new cavities occurred and two proximate fillings failed because the cavities had not been sufficiently extended. The next year two more cavities were found. Then there was complete immunity for ten years more, when suddenly there occurred another crop of cavities. This patient came regularly for examination during all of these years, and I feel assured of the meaning of this history. There are many such. In several cases I have seen caries occur first in middle life, the persons having been strictly immune throughout the period of childhood and youth. Still more rarely caries occurs first in old age.

These fluctuations are not dependent upon conditions affecting the general bodily health in any analysis that I have been able to make of the cases that have been under my care. Persons out of health are not especially liable to become susceptible to caries on that account. Persons in certain vocations are more liable to continuance of caries, as millers, candy-makers, and workers in starch or sugar. In the very nature of things, as well as in the light of physical examinations, these fluctuations between susceptibility and immunity cannot be from changes in the tissues of the teeth, for these are the hardest tissues of the body and the least subject to change. The whole range of facts bearing upon this question points to changes in the environment of the teeth, to the changes in the secretions, and possibly of the cellular elements of the general body which cause these changes. These changes in the secretions seem to have nothing in common with changes in the general health, and are not markedly influenced by them. They are often coincident with what seems to be the best of health. They are also frequently coincident with ill health, and many cases related in our literature would seem to connect them with ill health of sometimes one kind and sometimes another. These I have often seen, but, taking the mass of observations together, I am of the opinion that they are merely coincidences, and that there are no especial forms of ill health that particularly predispose the teeth to caries.

Local Immunity.—Local immunity from caries in mouths in which caries is progressing is constantly before us. When we take account of those positions upon the surfaces of the teeth where caries is liable to attack them, and in which we are constantly observing the attacks of caries, we see at once that there are widespread local immunities of regions in every mouth. In this case caries is destroying the bicuspids and molars, leaving the incisors untouched. In a second case the upper incisors are being destroyed, leaving the molars free. In many instances the proximate surfaces are attacked, while the buccal and labial surfaces are free from caries; while in a certain proportion of cases it is the buccal surfaces that suffer especially. Can this be on account of differences in the tissues of the teeth in these special localities? Is not the cause of this difference much more likely to be found in the environment of these particular localities, to something in the position that favours the building of microbic plaques in the one place and is unfavourable in the other?

Then, again, we find when we follow carefully the history of certain families that cavities in these several parts of the crowns of the teeth occur in succession, following each other as each particular group of positions becomes susceptible. In this family cavities occur in the proximate surfaces of the molars and bicuspids at the age of 14 to 18, and in the same mouths we find a crop of cavities occurring in the buccal surfaces of the same teeth at the age of 20 to 25. In another family the order of the occurrence of decay in these localities will be entirely different.

In persons who have no filling done, and in whom caries has not been very severe, we find that some certain teeth are lost, but that carious cavities in others cease to progress and remain stationary for many years or during life. Caries may even progress and destroy other teeth while these stlll remain stationary. The locality has become unfavourable to the progress of caries because of some change in its environment, and decay has ceased. This condition is very generally present in those cases in which very old leaky amalgam fillings have "*saved the teeth for forty years or more.*" If these fillings had fallen out five years after they were made the teeth would have been saved all the same, because of the immunity of the locality. Such fillings do not protect from caries when the susceptibility is at all considerable; and without careful consideration of their environment and comparison with what occurs in conditions of susceptibility to caries our clinical experience will lead to conclusions very wide from the facts.—*Dental Cosmos.*

Root Treatment: a Positive Method.

READ BEFORE THE NEW YORK INSTITUTE OF STOMATOLOGY, NOVEMBER 1, 1898.

By F. MILTON SMITH, D.D.S., NEW YORK CITY.

ON page 375, "Harris's Principles and Practice," edition of 1871, we find the following directions for treating pulpless teeth, as practised by Professor Gorgas, of the Baltimore College of Dentistry:—

"Remove carefully all diseased and decomposed matter, *mechanically cleansing* the root thoroughly." (Italics are ours in place of his more lengthy description as to how he does it.) "Syringe out all loose particles with tepid water, dry the canal thoroughly, saturate a piece of floss silk with creosote, and pass to the end of the canal; seal up cavity for twenty-four hours, then examine, and, if necessary, repeat the dressing. When not the slightest odour of purulent secretion is perceptible, fill the root temporarily, and wait for a week. Not infrequently it is necessary to repeat this course of treatment several times. In one case two months elapsed before we felt warranted in filling the tooth."

The writer of this paper knows of one case where an eminently respectable dentist of this city treated such a case for more than eighteen months.

With some slight and apparently immaterial changes as to drugs, the writer is inclined to think this is considered orthodox treatment by very many of our best men to-day.

We have personally removed many such temporary—or, as some men term them, permanent—root-fillings of cotton, silk, &c., during the last three years the last one only a few days since.

In a paper read before this Society, our highly esteemed friend, Dr. Louis Jack, of Philadelphia, in describing his treatment of pulpless teeth, says, "When there is no fistula, the difficulty of disinfection is increased. My plan is to expect a correction of the conditions by the slow admission of a disinfectant, which in its nature is not irritating. For this purpose I loosely fill the canal and pulp-chamber with a solution of aristol, and fill the outer cavity around a root-filling instrument of such size as will permit the effusions forming at the apical region to escape through the small opening left on the withdrawal of the broach. I then *repeatedly* dress it in this manner [the italics are ours], making the vent or opening smaller each time. Then [as we suppose when he deems it safe] I temporarily fill the canal tightly with a thread dipped in aristol as a tentative measure."

If our neighbours have removed as many root-fillings of our making, in order to relieve suffering, as we have silk, cotton, and other absorbents for the same purpose, we are willing to admit without further controversy that our method is a failure. If our patients do have serious trouble, they succeed much better in keeping it from us than they used to in the good old days, when we filled temporarily with cotton, string, silk, &c., for then we could not eat our meals in peace, nor could we always get an uninterrupted night's sleep.

We find in our reading that it is considered very bad practice, in opening a devitalised tooth, to immediately remove all the contents of the pulp canal, lest in our attempt to do so, we force septic material through the end of the root and so produce trouble. We suppose this is why Dr. Jack recommends a slow admission of disinfectant, by loosely filling the canal with aristol.

Dr. J. Foster Flagg, in the last article we read from his pen, says, "I regard it as a matter of first importance that the apical foramen shall not be passed; above all, enlarged." With the latter suggestion we heartily agree. As to the extreme danger of passing the foramen we are not so confident.

In this Society, at the October meeting, as we remember it, Dr. J. Morgan Howe cited a case where he had opened a central incisor in which the pulp had been for a long time dead. If we are not mistaken, he said he was very careful not to go up more than two-thirds of the way to the end. Notwithstanding this, an abscess developed inside of forty-eight hours.

It has been a matter of great interest to us that, in many cases cited by our ablest and best men, where they caution us to be extremely careful not to go to the end of the root, they report serious trouble following their most careful efforts in that direction.

We have sometimes failed in accomplishing what another has claimed to be an easy matter, because that one has omitted from his description some detail which he took for granted we were conversant with. This is our apology for more minuteness in describing our method than some before us may think necessary.

Our treatment being almost without exception the same, in all cases of pulpless roots, we shall not classify the different conditions found, which are familiar to all.

Unless the tooth is so sore as that to work on it would produce great discomfort, we at once adjust the dam if possible. We consider this very important, as it leaves us the free use of both hands, with no danger from the saliva. We then open up the pulp-chamber so that we can get directly at the roots; not one but all. This sometimes necessitates the removal of a large portion of the crown, but we had much rather lose three-fourths of the crown than save nine-tenths and have it in such a condition that our patient dare not bite on it; for in the former case we can supply the crown, but we cannot supply the lack caused by not being able to get at pulp-canals directly.

Therefore, with the old farmer who advised his son to get rich honestly if he could, but get rich, we say, most emphatically, get direct access. Next, remove everything you possibly can from the roots, going to the extreme end if you can get there. We have been two hours getting there sometimes. It is not our practice to enlarge the canal, except sufficiently to get a good entrance. Unless the root is extremely foul we rarely use an antiseptic until we have the root mechanically cleansed. After removing all *débris* possible, if there is a discharge of pus or moisture, we very patiently absorb it with paper wound around broaches, removing each piece after using. If we can now get the root dry (kindly note the provision), we expect to fill it permanently at that sitting, no matter what the previous condition, provided it is not too sore to work upon. If the root is causing pain, we open it freely to give relief, and defer the operation to a subsequent sitting. We said we expect to fill the root at once if we can get it dry. We make this exception because we have found, during ten years past, probably six or eight lateral incisors where the accumulation of a purulent fluid resembling more the serum of the blood than real pus has been so abundant that we have not been able to get the root dry after patiently working one hour. Usually even these can be filled at the second sitting.

Reference has been made to Dr. Flagg's caution not to go through the foramen. Regarding this we would say that we never feel absolutely safe unless we have gone through with a fine broach, for then we feel quite confident our remedy will reach the proper place. We firmly believe we have not lost three teeth in ten years where we have been able to get our medicine through the foramen and have filled the root clear to the end. Having dried the root and, if possible, passed our fine broach through it, we now insist that a messenger shall go up through the end and throttle those little fellows who are up there determined to make trouble. For upward of three years our sheet-anchor was chloride of zinc, 10 per cent. solution, followed with this root-filling: gutta-percha dissolved in chloroform to the consistency of cream, in which a liberal supply of iodoform powder is mixed. We think the exact quantity not material, but should use probably one drachm to one ounce of gutta-percha solution. Since iodoform is not perfectly soluble in chloroform, we stir the mixture before using. Although the zinc chloride can be depended on to do the work effectually, we found it unnecessarily severe, and for seven years we have used carbolic acid instead.

To get our carbolic acid where we want it, we often place a drop in the root, then place a piece of softened gutta-percha in the cavity, and with a burnisher force it into the root.

As to the old fogeyisms of using carbolic acid and iodoform, we simply say that with us they accomplish the purpose. So long as they do we shall use them.

When we are satisfied that our carbolic acid has gone where we want it, we dry the root as thoroughly as we can, after which we pump our gutta-percha solution into it, following with shreds of bibulous paper dipped in the solution and packed as thoroughly in the root as we know how. If the root-canal is so small that we are unable to carry these shreds of paper, we, after pumping the mixture in the root with a fine broach, carry a piece of eighteen-carat gold wire as far up as we can. We have some of this wire, about three-one-thousandths of an inch in diameter, which the late Mr. R. S. Williams drew out for us some years since.

Dr. S. J. Perry, of this city, mentioned a similar plan some years ago, but, as we remember, he takes larger wire and files one end to a very fine point.

If the foramen is enlarged, we run a hooked broach through it after placing on the shank of the broach a piece of rubber dam. Having shoved our broach through, we draw it back till the hook catches on the edge of the root; we then shove our rubber up till it touches the cutting edge of the tooth, then withdraw the broach carefully, when we have the exact measurement of the root. This plan was, I think, first suggested by the late Dr. Atkinson.

Having ascertained the length of the root, we take a canal-plugger, place on the end of it a piece of softened gutta-percha about as large as will close the foramen, having first made a mark on the shank of our plugger the exact distance from the extreme end of the gutta-percha that our root is long. After placing our solution of gutta-percha in the root, we carry our root-plugger to the end, leaving the gutta-percha there or stopping when our mark on the instrument is even with the cutting edge of the tooth. We then fill the balance with paper dipped in the solution, as before mentioned, finishing at the outer third with oxyphosphate.

We find a few roots where the canals are so fine we cannot get even our gold wire into them. These we do not fill except as we can get a little of our solution into them.

It is our custom, after treating and filling a root, to say to the patient that they will have some quite severe pain for a few hours following the treatment. Quite often this prediction is not fulfilled, in which case they are agreeably disappointed; if it is they are not frightened, and bear it until it subsides.

In summing up we would say that we regard as essential to success in root treatment, first, the rubber dam; second, free direct access; third, thorough cleansing mechanically and antiseptically; fourth, getting the antiseptic through the root; fifth, perfectly filling the root immediately upon getting an aseptic condition with an antiseptic root-filling; sixth, sufficient confidence in the method used to insure thorough work, and the minutest attention to details.—*International Dental Journal.*

Amalgam and Gutta-Percha in Combination as a Filling.

READ BEFORE THE UNION MEETING IN BALTIMORE, JUNE 4, 1898.

BY DR. L. C. F. HUGO, WASHINGTON, D. C.

WHEN an extensive approximal cavity in a bicuspid or a molar presents itself, we are sometimes puzzled as to what material to fill with. An all-metal filling may be contra-indicated by probable irritation from painful transmission of sudden thermal changes, by poor structure of the tooth, or by impaired general health of the patient. Gold or amalgam might make only disastrous temporary work. Gutta-percha in compound cavities, though in itself a reliable preservative of tooth-structure, will not long withstand the wear and tear of mastication. Cement, though more resistive, will not in the majority of cases last effectively more than a year, and cannot be trusted near the gum. A composite of cement and gutta-percha, though better than either separately, is still open to objection, because of the cement's yielding too readily to the solvent effect of some constituent of the saliva.

In these cases I have found the combination of amalgam and gutta-percha to answer a very good purpose.

This composite is old: but mention of it appears in our literature merely as a suggestion. I do not remember having read anywhere a detailed description of its use and merits. However, such description may not have been thought worth while giving, since the method of making such a filling is so very simple, and because the merits of the composite are not generally admitted or recognised.

The combination of amalgam and gutta-percha makes a reliable and serviceable temporary filling in the compound approximal cavities of bicuspids and molars :—

(1) Of children, the structure of whose teeth may not be good ; and

(2) Of adults, where pulp-extirpation or capping and permanent filling may not be deemed advisable.

In the case of children, where the second teeth are of a structure that will not promise permanence of gold or of amalgam work, or where such work would involve a very great tax upon the endurance of the young patient, it is a question whether to attempt doubtful and trying all-metal filling, or to subject the patient to the annoyance of a purely temporary makeshift, which must frequently be renewed, and which in the case of cement, may become dangerous at the necks of the teeth. When in doubt we certainly do nothing worse than err on the safe side if we put in a temporary filling, combining the desirable qualities of such a composite as amalgam and gutta-percha.

In the case of adults, where extensive decay has formed more or less near the pulp and reaching beyond the gum-line, the cavity difficult of access—where, in short, all-metal work, even with the employment of pulp-capping, may endanger the comfort of the pulp, and where, as taught by general experience, re-occurrence of decay is probable—it is with some misgiving that we insert so-called permanent work. Here, too, the composite under consideration has given me good results.

Again, in the case of senile softening of the necks of teeth (compound approximal or buccal cavities being understood), where the chances are preponderantly against the serviceability of all-metal work, the combination of amalgam and gutta-percha can be inserted with the expectation of relative permanency.

The cavity is prepared with special reference to securing strong, clean walls, and, if possible, free margins. The part of the cavity to be occupied by the amalgam-top should be so shaped as to offer a hold independent of the gutta-percha substructure. This obviously is an important consideration.

It should be borne in mind that the gutta-percha in this composite is not inclosed ; it fills the whole cervical aspect of the cavity.

When frail teeth, or such as have senile softening, are to be filled after the plan here discussed, the proportion of gutta-percha should be greater. That is to say, approximately two-thirds of the filling should be made of this material ; while in stronger teeth the substructure need occupy only the cervical third or fourth of the cavity.

As it is almost indispensable that the gutta-percha should have a dry surface to rest on, and as this is obtained often with difficulty when the cavity reaches beyond the gum-line, a crescent-shaped, thin, steel shield, or a thin-blade curved spatula, is of great convenience. A good feature of the shield is that it shapes the filling, thus rendering unnecessary laborious and risky trimming. It is needless to say that, in order to secure accurate adaptation in the angle formed by the shield and the cavity-walls, the filling should be started with small pieces of the gutta-percha inserted with rather pointed plugger-ends.

In shaping the filling as a whole, it is best as far as possible to follow the normal outline of the tooth; there should be a free neck and a knuckling morsal surface. The gutta-percha in place, if not already moulded by the shield, is trimmed flush with the cavity-margin; then with a warmed ball plugger-end it is pressed at about the middle of its surface so as to be spread across the interdental space into contact with the adjoining tooth. This is done to offer an easily-made base upon which to build the knuckling amalgam-top.

As said before, the amalgam-gutta-percha composite is intended only for a temporary purpose; yet in length of service it frequently outlasts similarly placed permanent fillings.—*Dental Cosmos.*

A Peculiar Restoration.

By ELLISON HILLYER, D.D.S., Brooklyn, N.Y.

The crowning of an upper lateral incisor is an easy matter where conditions exist which warrant the cutting off of the tooth and the usual procedure of root trimming, concluding with the usual crowning.

When a case presents which requires restoration, such as the following, some study of the case is necessary to meet the required success. It is with this thought in mind that I take up the description of this case, trusting it may be of benefit to some one.

The case presented a perfectly formed upper arch with the exception of the lateral incisors; the right lateral was missing with no space between the central incisor and the canine; the left lateral was a mere peg-shaped tooth of nearly the proper length, but in other respects undeveloped (as far as shape is concerned). To restore this to proper shape and appearance was the object.

The patient, a young lady and a singer, felt the effect of the appearance of her mouth when showing her teeth, and the result was an habitual dropping of the lip upon the left side in the endeavour to cover the defect. A further object, therefore, was to correct this habit.

The tooth, peg-shaped though it was, was fully alive, with perfectly formed enamel and no cavities. The plan of destroying the pulp and utilising the canal did not appear advisable, nor did I desire to cut off the tooth. I finally decided to proceed without disturbing the existing conditions.

As the recital of failure is often as valuable a guide as of success in warning how not to proceed, and as ultimate success crowned my efforts in this case, I will tell how the first attempt did not succeed and why.

After making a die and counter-die and swaging a perfect fitting cap for the tooth of thin platinum, I selected a lateral tooth suitable as to size and colour; then without regard to the pins, I ground the tooth to fit over the labial aspect of the cap in position upon the tooth. This completed, I baked the two (cap and porcelain tooth) together with continuous gum body. When cemented upon the tooth, the conditions appeared quite satisfactory for a short time, at the expiration of which the patient returned with the facing bitten off. The conclusion was that the porcelain was not sufficiently strong in itself to withstand the strain. So much for the failure.

Proceeding with a capping of platinum similar to the first, I selected a canine tooth about twice the required length, or at least long enough to cover the peg-shaped tooth with the porcelain above the pins. I then cut off the remaining portion of the porcelain tooth below the line of the pins and ground it to fit the capping, as before, but preserving the pins. I used in this instance a canine tooth for two reasons; first, to match the opposite canine (the right lateral being missing), and, second, to allow a little extra support of porcelain to the pins by the pointing of the tooth. The appearance of this tooth was better than the first.

With the porcelain tooth in position against the platinum capping I bent up the pins on each side of the capping and soldered with pure gold, subsequently covering the back with continuous gum body as before. This, when set upon the peg-shaped tooth, restored the part satisfactorily, and has given active service for about a year, and seems good for prolonged use.—*Items of Interest.*

Correspondence.

We do not hold ourselves responsible for the views expressed by our correspondents.

Dentists and the Telephone.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—I beg to draw the attention of the dental profession to what has always appeared to me very unfair treatment by the Telephone Company.

I understand that the Company makes considerable concession to the medical profession in letting its members have the use of the telephone on very much reduced terms.

Seeing that the two professions are so closely allied, and that a large number of those who practise dental surgery are also qualified to practise general surgery and medicine, and on the other hand a number of medical practitioners encroach on the field of the dentist, especially in country districts, I fail to see on what grounds the Company draws the line to justify them in making this difference between the two professions. Probably the reason is that the Company has not been approached on the matter by a fair proportion of dentists. If that is so, we cannot blame the Company for not giving what has not been asked, seeing that we are told, "Ask, and ye shall receive." I have reason to believe, however (and I speak with some authority), that if a few dental practitioners were to combine and approach the Company, they would get the same concessions that are at present granted to the medical profession.

I would therefore ask all members who are interested in the matter, and who wish and are prepared to get a telephone connection, to communicate with me as early as possible, so that steps may be taken with a view to approaching the Company on the subject, and seeing whether they are prepared to give the dental profession also the use of the telephone on the same favourable terms on which they have granted it to the medical profession.

I am, Sir,
Yours faithfully,
HENRY C. CARTER.

181, *Edgware Road, W.*

Editorial.

A Few Words to Dental Students.

THE readers of our leading article will, it is hoped, approve of the course adopted this month of addressing some remarks to those who have this October entered as students at the Medical and Dental Schools. If an excuse be needed it may be found in the fact that introductory lectures are not delivered at Dental Schools.

We would congratulate those students who, after consideration, have decided to become members of a profession, for such a choice must undoubtedly have been the outcome of careful consideration. As to the respective merits of professions and trades much might be said, but we may content ourselves with the remark that both can be honourable vocations; nevertheless the professional man should have as his ideal the benefit of his fellows in a way that is not necessary for the tradesman.

Such an ideal necessarily calls for the exercise of the higher qualities and virtues; to name only one—an unselfish devotion to duty for the benefit of others. A dental student, therefore, must be prepared to sacrifice much comfort and any ambitions he may have nourished in the direction of money-making if he would rank as an honourable professional gentleman, and he should always bear in mind the fact that it is very easy for a profession to be practised as a trade, and prepare himself to avoid the pitfalls that might possibly tempt him to so conduct his practice.

Any who may have entered upon their career because it appears to be a money-making concern are doomed to bitter disappointment, and they would do well to seek some other calling, such an one, for instance, as may be suggested by the many alluring and highly-coloured advertisements which used to deface, but some of which now almost arrive at gracing the hoardings in every town and village throughout the Kingdom.

Dentists should also bear in mind that they are also scientists, and be ready with open minds to follow whithersoever truth may lead them.

The students who have entered one or other of the excellent schools in England, Scotland and Ireland, may perhaps be helped by a few words as to the best way of learning. There are two principal methods—one by observation, the other by experimentation. The former teaches very largely by rule of thumb, and small results follow, and truth often lies hidden from it; but experiment requires that fundamental and elemental facts shall be demonstrated to be true before they are accepted. A better example illustrating this cannot be found than dental caries. For many years theories and hypotheses were put forth to account for this disease, formulated in terms that did much credit to the intellectual powers of the respective theorists, but none of them were true, and it was not until experimentation was undertaken on scientific lines that the real origin of dental caries was demonstrated.

Such, then, is the spirit that should guide each new student in his hospital career; let everything be verified. In anatomy let the structures be dissected thoroughly and completely; in physiology let the theories be proved in the laboratory; and so through all the subjects, if the lecturer's statements are verified by personal experiment the facts will not be forgotten.

Each student should, moreover, *make for himself* a series of note-books (do not copy them from another) in order that he may have an abstract of each subject he is learning, a reference to which will recall the lectures, the experimentation, and the reading in each subject. The course of dental study so carried out will not only ensure success at examinations, but also produce that "better dentist" that our members are so anxious to see.

The attractions of frivolity and dissipation found in large towns will be materially counterbalanced if the student will set himself to develop the true scientific spirit, for the investigation of the laws of nature are even more fascinating than these, and should he be obliged to surrender preconceived ideas, what does it matter if truth prevail?

Let each student, therefore, go fearlessly on, for in his turn he may demonstrate some truth at present hidden, since nature only reveals her secrets to those who seek with much patience and earnestness. He may take courage from the example of Professor Dewar in his experiments to solidify oxygen, air, hydrogen, all of which are now accomplished in the face of difficulties apparently so insurmountable that Faraday, in very reverence, held his hand lest he was investigating into things hidden from man's understanding.

George Hewlett Bailey—An Appreciation.

BY DUDLEY BUXTON, M.D., B.S., M.R.C.P.
ANÆSTHETIST IN UNIVERSITY COLLEGE HOSPITAL AND DENTAL HOSPITAL OF LONDON.

IN days when telegrams replace letters, such epistles as Horace Walpole's, which, by the way, numbered 2,665, or those of gentle Gilbert White to his friend Pennant, and when the raucous telephone robs the salutations of friends alike of their music and their repose, it is no penance to turn from to-day's bustle of life to the quiet acre of God wherein lie the remains of those we love. George Bailey's almost lifelong comradeship with dentists makes these pages a peculiarly fitting place for an "appreciation" of such an one as he. It is difficult to find greatness, as the world reckons the deeds of men, in Bailey's life, and in that very want lies the charm of the man and may account for the singular unanimity of good feeling which Bailey's memory awakens in the minds of his many friends. Throughout a busy career a gentle, kindly and refined nature found time to develope. The shadows of vague ambitions which have wrecked the lives of so many medical men were to Bailey but passing shades too intangible to be worth his grasping. It might be said, how can a man do any work for his day and generation worth the undertaking without such a modicum of ambition to spur him to exertion and conquest. But to some men living is enough. To accomplish the day's work as it should be done, without jar or regret, is to such, a task noble in itself, bringing fruition of contentment to themselves and of help to their fellows. Of these was Bailey. He had set himself the not ignoble task of perfecting the methods required by his profession, and having done this he stood aside from the strife of tongues and angry disputations which have for half a century marked for their own the pain-saving science of Anæsthetics. Bailey has often said to me when speaking of some new departure in our work: "It may be very good, but I leave the younger men to work out these things, it is their business and best that they should do it." But all who worked with him knew how resourceful he was. Whether his methods were the best we do not discuss here; they were peculiarly his own, and so complete was his mastery of them that few could compete with Bailey on his own ground, whatever armamentarium bristled in their bag or bulged their pockets. Give Bailey his gas and ether apparatus and you would see him at his best, and might learn of him things worth the knowing.

I can glean little of his personal history. Born at Bath, September 16, 1827, George Hewlett went in process of time to private schools, at Bognor and then to Barnet.

He entered University College Hospital and obtained the diploma of the College of Surgeons of England in 1849. In those days the system of apprenticeship was in vogue, and Bailey went to Mr. Redford, then in practice in Golden Square. There is little doubt that the master craftsman's influence upon the apprentice was a life-long one. The surgeon was, it is true, less a surgeon than an art critic and a connoisseur, and his opinion was often sought for, and granted to the experts of the British Museum. Mr. Redford's chosen pursuits lay outside his profession, and Bailey appears to have imbibed many of his tastes for art and things beautiful during his sojourn with the elder man. But this had to end, and the necessities of earning a livelihood brought Bailey into general practice, although not for long. The pioneer anæsthetist, Clover, soon found in the subject of this notice an active and reliable lieutenant, and when he died his practice became Bailey's. In speaking to a gentleman, an alumnus of "Leicester Square," who had qualified within the last few years, I was struck by his saying: "You know I never saw Mr. Bailey," for few of those who have the burden upon their shoulders of supporting the honour of the dental profession in England will easily forget Bailey at work at the Dental Hospital. He was with it in Soho Square, and moved with it to Leicester Square, always genial, always ready to help, and punctually to attend to his duties. I am told that Mr. Bailey's experience in dental extractions gave him no small power in advising how a recalcitrant molar should be tackled. At least one member of the present staff confesses to having learnt wrinkles. This proves that the on-looker often sees most of the game, and in the case before us learnt how to play it to some purpose. The first time I saw Mr. Bailey was when, as the House Physician at University College Hospital, it became my duty to receive him, and take him to see an old friend, a clergyman, who was temporarily under my charge in a private ward. He looked then much as he looked up to the time of his illness, and his kindly consideration and pleasant manner somewhat impressed me. When some years later my dear old friend and teacher, Mr. John Marshall, urged me to adopt anæsthetics as my branch in the profession, I went to see Mr. Bailey. Then, as ever, he was kind and helpful, and although it became my duty for many years to be his junior and deputy at the Dental Hospital, I cannot remember any friction, any littleness, but always anxiety to help the younger man, and to do to others as he expected all men would do by him. So much for mere personal recollections of many years of association and friendship. One knew less of him in his surgical work, although this was no small part of his practice. With the late Sir John Erichsen, with Sir John Williams, the elder Allingham, and many others, Bailey worked, and those of his old clients who survive him have only one thing to say—"Oh, he was a good fellow."

The hospitals to which he was attached as anæsthetist were Charing Cross, the Brompton Cancer Hospital and the London Throat Hospital, and the *doyen* of Dental Hospitals in Leicester Square.

In Bailey's declining years the tastes of his youth and manhood became accentuated. He had always loved art, especially etchings, and the best examples of Axel Haig's work adorned his London home.

Bailey, with his tin case containing his gas apparatus, was a familiar figure; let us follow him into the room where the ruthless operation has to be performed. With a tact peculiarly his own, he possessed the power of making the nervous patient a confederate in what might be considered a good practical joke—the taking of "the gas." To the children he would sing or hum; all felt his influence, lost their fear, and welcomed him as a friend!

But there was another aspect of the man. As you saw him in his library among his loved books, you recognised the student and the collector. He would gloat over his Ruskin and his Morris's and handle with tender care some fresh addition to his book friends. Bailey was a keen archæologist, and loved especially to visit and revisit the cathedrals of his native land.

When, owing to the severe illness which came to him within the last few years, he determined to retire, which he did very regretfully—for he loved his work and the daily intercourse with his fellow workers—he made a home for himself a little out of London.

At this time it occurred to some of us that the occasion might be marked in some way so as to show Bailey what we thought of him, and I think it is somewhat remarkable that a purely private request made to those who had worked with him, to unite in giving him some old silver, should have met with almost unanimous response. Yet so it was, and it is mentioned here as a further instance of the man's faculty of making and keeping friends. Certainly one of the most touching scenes I have witnessed was Mr. Bailey's unaffected delight when the presentation was made. Alas! that he should have lived so short a time to enjoy the pleasure which this expression of good-will afforded him.

If anything can lessen the grief of the final parting of friends, it may well be the thought that at least the years have not been few, that a mellowed age and faculties still alert have completed the human temple constructed by the boy and the man.

Among anæsthetists Mr. Bailey was always popular. He was President for two years of our Society, and following in the steps of Clover he helped to popularise and extend the use of ether as an anæsthetic. When death claimed him many sorrowed, and all felt that although the man was dead the memory of his gentle and refined nature would for many a long day haunt the scenes of his labours.

Association Intelligence.

The Honorary Secretary of the Association desires to emphasise the statement he has on several occasions previously made, viz., that anonymous communications relating to cases of irregular practices, or alleged infringements of the Dentists Act, cannot receive from him that attention he would wish to bestow upon them, or they may deserve.

Representative Board.

A MEETING will be held at 40, Leicester Square, on Saturday, November 11, at 3.30 p.m.

South Wales and Monmouthshire Branch.

THE Annual Meeting was held at the Park Hotel, Cardiff, on Thursday, September 28. A Council meeting was held in the morning, after which the members were entertained at luncheon by the President (Mr. J. C. Oliver).

The business meeting was held in the afternoon, when the President occupied the chair. Present :—Messrs. E. R. Gay, E. H. Musgrove, J. Gill Williams (Newport), H. G. Howitt, W. Jones (Aberdare), J. Willows (Cardiff), H. J. Thomas (Swansea), F. C. Scott (Swansea), C. F. Peaty, E. K. Cannell, G. Spray, Vernon Knowles (Reading), W. J. Royal (Bath), W. H. Nicholls (Abergavenny), T. N. Ritson (Swansea), E. James, Graham White (Newport), Little (Newport), Baudry Mills, and J. Percy Oliver (Hon. Sec.).

After the minutes had been read and passed, the HON. SECRETARY read the Council's report, which was as follows :—

"The Council present with pleasure their report of the past year to the Annual Meeting of members. Last year being the first year of the Branch's existence, the general meeting confined itself to the election of officers and framing necessary bye-laws. These have been submitted to the general committee of the Association and have been accepted. A combined meeting of the Branch and of the South Wales and Monmouthshire Dental Society was held on June 8 at Cardiff, and an interesting discussion took place upon a pamphlet issued by the latter Society entitled 'Care of Children's Teeth.' On the introduction of the new Companies Act into Parliament last session, your Hon. Sec. wrote to local M.P.'s in the name of the Association, urging their support if necessary, and several favourable replies were received. The Council suggest that, in addition to our Annual Meeting, two other meetings of the Branch should be held, one in the fall and the other one in the spring of the year, and would urge members to do what they can to make these meetings profitable by contributing papers for discussion. The membership of the Branch is twenty-four. One new member has been elected during the year. The four retiring members of the Council are Messrs. Peaty, Spray, Scott, and White, and these gentlemen are nominated for re-election. The Council suggest that the next general meeting be held at Newport, Monmouthshire, and nominate Mr. Graham White as President-elect. The Hon. Treasurer reports that he has received the sum of £8 12s. for subscriptions. The Western Branch have forwarded a donation of £1 1s. There is a balance in hand of £7 2s. 6d."

The report was adopted.

Mr. J. Gill Williams was elected as representative of the Branch on the General Council, and Messrs. Nicholls and Mills were nominated to the Representative Board.

The PRESIDENT then delivered his presidential address.[1]

Mr. RITSON, in moving a vote of thanks to the President for his address, alluded to the value of combined action. When the circular from the parent Society upon the Public Companies Act was sent out he found that some of the dentists in Swansea had taken individual action in the matter. That seemed to him to be a great mistake. Their influence with local members would be much greater if they approached them as a combination.

Mr. V. KNOWLES asked if there were any school dentist inspectors in the South Wales district.

The PRESIDENT replied that there were not.

Mr. KNOWLES said that they had such inspectors in many of the London districts. The School Dentists' Society had already been of great service in advising candidates for appointments as to what course they should adopt.

Mr. GRAHAM WHITE thought they should bring their influence to bear upon public opinion in the direction advocated that afternoon. The attention paid to children's teeth was increasing. The difficulty was that the public bodies did not want to spend money. They had the rate-payers before their eyes, and also "elections to come." If they could show that it would be a saving in the end to appoint such inspectors, that would appeal to the public authorities. He thought they might approach the school-boards upon the subject. With regard to the care of children's teeth, he believed that a great deal of good would accrue, the value of which would be felt in after years, by judicious weeding, especially amongst boys. His experience was that it was often far better to take out the six-year molar if showing signs of weakness.

Mr. GILL WILLIAMS could not agree with Mr. Knowles in his advocacy of the School Dentists' Society, for he felt that it was most unfortunate that the British Dental Association had left the work to a private society, and it would not be long before the British Dental Association would have to take up the work that it had dropped under circumstances that he could not understand. As to dealing with members of Parliament, he thought that if a member of the Association had some influence with an M.P., he was the one to bring any particular subject before his notice. For instance, if the M.P. were a patient he might be tackled when in the chair. At the same time they should not leave business of the sort referred to to promiscuous efforts. The Newport Board of Guardians were becoming rather keen upon the subject of caring for the children's teeth, but they wanted to pay only 2s. a head for 105 children. He would not mind making an inspection for nothing, but should not like to undertake such an office at about £10 a year.

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[1] Published on p. 598 as an Original Communication.

Mr. NICHOLLS suggested that it might be a good plan to send a circular to each M.P., and if any member of the Association had influence with an M.P. he could approach him on the subject in addition to the official communication.

This ended the discussion.

Mr. V. KNOWLES then gave his paper, with practical demonstrations, on "Hints on Vulcanite Work," and "A simple Method of making Caps for all Gold Crowns."

In the course of the discussion that followed, Mr. RITSON, Mr. THOMAS and the HON. SEC. said that they had found the use of aluminium in making plates very unsatisfactory. The vulcanite seemed to have some effect upon the metal which made it turn into a powder.

"Bites" was the subject of a demonstration given by Mr. E. H. MUSGROVE, who explained a method used by himself and his partner (Mr. Gay, who invented the system). The bite was gauged by means of wooden wedges, which were used as handles for bees-wax matrices for which plaster-of-paris models were taken.

The meeting then adjourned to the President's surgery, where Mr. Graham White gave a demonstration on "Weston's Metal," and Mr. Percy Oliver dealt with the subject of "Making Porcelain Crowns on Gartrell's Furnace."

At the close hearty votes of thanks were accorded.

Metropolitan Branch.

A MEETING of this Branch will be held at 40, Leicester Square, on Wednesday, October 25, at 8 p.m., when communications will be made by Mr. Leonard Matheson, Mr. C. Robbins, Mr. G. Torpey, Mr. E. Preedy, Mr. Norman Bennett and Mr. J. H. Badcock.

Council meeting at 7 p.m.

Any member willing to make casual communications is requested to inform

37, *Queen Anne Street, W.* W. H. DOLAMORE, *Hon. Sec.*

Midland Counties Branch.

AUTUMNAL MEETING, NEWCASTLE, SATURDAY, OCTOBER 28.

3.30.—Newcastle Dental Hospital, 37, Nelson Street.

Demonstrations.—By G. H. Lodge, L.R.C.P., L.R.C.S., L.D.S.I. (Rotherham), and Mr. Robert Marston, (Leicester): (1) The Prolonged Administration of Nitrous Oxide Gas for major dental Operations, by means of Marston's New Terminals: (*a*) with inhaler or facepiece; (*b*) without inhaler or facepiece. (2) The Administration of Marston's New Gas de-oxygenated Air.

4.30 p.m.—Station Hotel. Discussion of Demonstrations. Casual communications by J. W. Daniels, L.D.S., R. Keith Common, L.D.S., and others. Papers: by Alfred Cocker, L.D.S., "A Higher Dental Qualification;" T. E. Constant, L.R.C.P., M.R.C.S., L.D.S. "The Necessity for Early Amendment of the Dentists Act."

DAVID HEADRIDGE, *Hon. Sec.*

Manchester.

Southern Counties Branch.

THE next meeting will be held at the Pier Hotel, Ryde, on Saturday, October 28.

1 p.m.—Luncheon (at the kind invitation of Messrs. Colyer, Daish and Ellis).

2.30 p.m.—General Meeting. Papers: "Crowns, Some Varieties," by Mr. J. F. Rymer; Casual Communications by Mr. G. O. Richards and others. Demonstration: "The Use and Construction of Cheoplastic Lower Dentures, by Mr. J. Robert Freeman.

6 p.m.—Dinner (tickets, 5s. each).

Trains leave Victoria at 9.13, 10.30, and 11.35.

FRANK V. RICHARDSON, *Hon. Sec.*

Leeds and District Section of the Midland Branch.

THE first Meeting of the Session will be held at the Medical Department of the Leeds School of Medicine, Thoresby Place, Leeds, on November 21, at 7 p.m.

Papers will be read on the following subjects: "Repairs of Vulcanite Work," and "Metal Dentures," by Mr. GEORGE BRUNTON and Mr. C. RIPPON.

It is hoped there will be a full attendance of members, who are reminded that they may introduce friends.

North Parade, Bradford. A. ALEX. MATTHEWS.

International Dental Congress, 1900.

ORGANISATION OF THE CONGRESS.

Paris, September, 1899.

THE International Dental Congress, to be held in Paris from August 8 to 14, 1900, is officially placed under the patronage of the French Government, and the Members will enjoy all the advantages attached to Official Congresses.

The Organising Committee, which consists at the present time of about fifty members, and which emanates from the French Dental Societies, united in a common interest, has been officially recognised by order of the General Director of the Exhibition. It met on April 12, last, and appointed its Board, which in the course of several sittings has already prepared the organisation of the Congress. On account of the importance of its development, this organisation will necessitate the addition of supplementary members, whom the Government has promised to receive favourably.

The work occasioned by such organisation being of various kinds, it will be before long divided among several sub-committees, or special committees, who will choose from among their own members a President and a Secretary, more particularly for the organisation of each section of the Congress, &c.

The organisation of the Congress in France consists of three principal divisions:—

(1) Administrative Organisation.

(2) Scientific Organisation.

(3) Organisation for Reception.

(1) ADMINISTRATIVE ORGANISATION.

This allows of the formation of several committees: Press Committee, Treasury Committee, Committee of Examination and Control, Reports Committee, &c.

(2) SCIENTIFIC ORGANISATION.

This includes several sub-committees, whose business it is, together with the General Committee, to organise each section separately and to arrange for the practical demonstrations.

These sub-committees are as follows:—

(1) Committee of the First Section (Anatomy, Physiology and Histology).

(2) Committee of the Second Section (Pathology (special) and Bacteriology).

(3) Committee of the Third Section (Operative Dentistry and special Therapeutics).

(4) Committee of the Fourth Section (General and Local Anæsthesia).

(5) Committee of the Fifth Section (Artificial Teeth, the Correction of Dental and Facial Irregularities).

(6) Committee of the Sixth Section (Teaching and History of the Art of Dentistry).

(7) Committee of the Seventh Section (Legislation, Jurisprudence and Ethics).

(8) Committee of the Eighth Section (Hygiene, public dental service.

(9) Committee of the Ninth Section (Practical Demonstrations of Prosthesis).

(10) Committee of the Tenth Section (Practical Demonstrations of Operative Dentistry).

(11) Committee of the Eleventh Section (Various practical Demonstrations; Fitting up of Operation Rooms, Laboratories, Electric Apparatus; Accounts, &c).

The General Committee of Organisation will, at the opening of the Congress, decide whether it is desirable to combine several of the sections, or to sub-divide them according to the importance they may have assumed during the period of organisation.

(3) ORGANISATION FOR RECEPTION.

This will occasion the formation of a Committee to undertake the general arrangements for the reception of Members of the Congress Meetings, fêtes, &c. The Committee will include foreign sub-committees for reception, consisting of members speaking one or more foreign languages, whose care it will be to put themselves respectively in communication with the delegates from a given country, in order to facilitate the accomplishment of their mission.

During the Session of the Congress these committees will undertake to receive foreign members and delegates from the country for which they have been respectively appointed, and to assist them as far as possible during their stay in France.

There will be therefore the following Committees:—

American.
Austrian.
Belgian.
Dutch.
English.
German.
Italian.
Russian.
Scandinavian.
Spanish.
Swiss, &c.

THE FOREIGN ORGANISATION OF THE CONGRESS, VIZ., BY NATIONAL COMMITTEES.

The professional Societies and groups of the different countries have been invited, with a view to the organisation of the Congress, to form National Committees composed of delegates from each of them.

Several countries have already formed National Committees, or are on the point of doing so:—Germany, England, Belgium, Brazil, Spain, the United States of America, Greece, Holland, Italy, Japan, Mexico, Sweden, Switzerland, &c.

The functions of National Committees were defined at a meeting of the Board in the following manner:—

(1) To diffuse information by means of circulars, notices in professional or other papers, official communications to the Societies of the country, and by any other means they may think fit to endeavour to induce their respective countries to take part—both materially and scientifically—in the Congress (applications for membership, subscriptions, communications, demonstrations, &c.).

(2) To centralise applications for membership, subscriptions, communications and demonstrations in the hands of the General Secretary and the Treasurer of their Committee.

(3) To render valid the candidateship of the members from their own country who request to take part in the Congress.

(4) To invite the various dental groups (societies, branches of societies, schools, journals, &c.) of their country to choose delegates appointed to *attend the Congress* to represent them.

(5) To propose for their respective countries members who could form part of the Honorary Congress Committee, and of the Honorary Committees of the Section.

(6) To send every month the list of applications for membership, communications and promises of practical demonstrations received by them to the General Secretary of the Organising Committee in Paris, and the funds at their disposal to the Treasurer of the same Committee.

(7) To draw up every other month a report for the Organising Committee upon the progress of the organisation in their country; a summary of these reports will be presented to a general Assembly of the Congress.

(8) To collect communications and promises of demonstration with a view of securing a worthy representative of their country in the Congress, and to send them at the proper time to the Organising Committee with all the particulars necessary to facilitate their presentation at the public meeting.

(9) To appoint three Members as President, Secretary and Treasurer, who will go to Paris a day or two before the opening of the Congress. Their mission will be to put themselves in communication with the Organising Committee, and to lay their accounts before the Committee of Control for examination.

(10) In a word, generally to represent officially in their respective countries the Organising Committee of the Congress with which they are directly and continually in communication.

CH. GODON, *President.*
DR. E. SAUVEZ, *Secretary General.*

EDITORIAL NOTE.

N.B.—The foregoing general details of organisation of the Congress will be supplemented at much greater length in a future issue of the Journal, when it is hoped to present, in addition, certain arrangements as to travel and residence in Paris during the meeting.

A CORRECTION.

In the September number of the Journal it was stated that subscriptions and all communications relating to the Paris International Dental Congress, 1900, should be forwarded to the Treasurer and Secretary General of the Congress in Paris. It has been decided, however, by the French Committee of Organisation that it will both save time and obviate confusion if these matters are left in the hands of the Treasurer and Secretary of each National Committee. In England, therefore, the subscription (£1) should be forwarded by any intending member of the Congress to the Treasurer of the British Dental Association, 40, Leicester Square, London, and communications may be sent to the Honorary Secretary of the Association at the same address.

Obituary.

William Bowman MacLeod, L.D.S., F.R.S.E.

We have to record this month, with very sincere regret, the death of one of the most prominent members of our profession north of the Tweed, Mr. W. Bowman MacLeod, L.D.S., F.R.S.E., a man who, by his unselfish devotion to the interests of the profession at large, and by his genial kindly spirit, had won for himself a name and an esteem that was almost as well known and as much appreciated south of the border as in Scotland. For some time past he had been in indifferent health, due in the main to an affection of one of the large blood-vessels immediately connected with the heart, but up to within a comparatively short time of his decease none but a few were seriously concerned as to the probability of any rapid development of the trouble, and the news of his death on the evening of Wednesday, the 20th ult., came as a sudden and unexpected shock to all.

Mr. MacLeod was a native of Edinburgh, and commenced his practice in that city early in the sixties, and by that untiring and restless energy which characterised his whole life, as well as by his courtesy and skill, he built up a large practice and a name that will be long remembered in lay as well as in dental circles.

In the agitation which culminated in the passing of the Act of 1878 he took an active part. He was elected President of the Odonto-Chirurgical Society of Scotland in 1884, of the Odontological Society in 1893, and of the British Dental Association when it met in Edinburgh in 1895. But the work by which he is best known, and by which he will be longest remembered, is in connection with the Edinburgh Dental Hospital and School; indeed, the interests of that institution are so immediately concerned with his personality that for a long

long time to come it will be difficult to dissociate the connection in our minds.

At the time of its reconstitution in 1879 he was elected Dean, and from that time forward he worked whole-heartedly and indefatigably to promote its interests. There was no school—in the ordinary acceptation of the term—attached to the hospital at that time, but, loyally backed by the help of his colleagues, it is no figure of speech to say that by his steady work and untiring devotion he has now made it what it is, as upon him fell the brunt of those never-ending details which, if any cause is to be successful, demand such constant and unintermittent attention. Many of the past students contribute their quota of reminiscences of kindly help and assistance received from him, and many will remember with gratitude and pleasure the evenings spent at his house, when the official Dean disappeared and a smiling and genial host stood in his place. At the social meetings of our dental gatherings he will be greatly missed, as his racy Scotch stories (especially one which will be always connected with his name) were in constant demand and were appreciated as much, or even more, south of the Tweed than in the country of their origin.

He has gone from amongst us, but leaves behind a legacy not to be despised—the memory and example of an earnest man, who ungrudgingly and unselfishly gave his time and energies towards the building up of our profession, passing on to those behind the fulfilment of the duties of which he never shirked his share.

Annotations.

Mr. J. G. Turner asks us to correct an error in the abstract of his paper on "Some Rarer Forms of Abscesses connected with Teeth," which appeared in our last issue. On p. 553, line 4, HCl should have been printed $HgCl_2$.

As has been previously intimated in our columns, a movement had been placed on foot for presenting the late Mr. W. Bowman MacLeod with his portrait; his sudden death has necessitated some modification of the original scheme, and in connection with this a circular has been issued which we reprint below. A list of subscriptions will be published later.

The "Bowman MacLeod" Memorial Fund.

Edinburgh, October 4, 1899.

Dear Sir,—Referring to the circular of the 18th ult., it is with very great grief that I have to record the sudden death of Mr. Bowman MacLeod on September 20. He had been in failing health for some time, but this rapid termination was a sad shock to all who knew him.

Unhappily no sittings were given to the artist, although Mr. MacLeod had himself made all arrangements for them. Under these circumstances Mrs. MacLeod has been consulted, and she suggests that, instead of a portrait, the memory of her husband might now be better honoured and perpetuated by the foundation of a "Bowman MacLeod" Prize in connection with the Edinburgh Dental Hospital and School, where, for upwards of twenty-one years, he had worked so faithfully and earnestly as Dean.

The Committee trust that this necessary change in the scheme may meet with your approval and support. The Subscription List will now remain open until December 31.

Yours faithfully,
(*Signed*) WALTER CAMPBELL, *Chairman.*

Hon. Treasurers { MALCOLM MACGREGOR, 20, Queen St., Edinburgh.
J. S. AMOORE, 10, Charlotte Sq., Edinburgh.

Hon. Secretaries { C. REES PRICE, 163, Bath St., Glasgow.
D. BAILLIE WILSON, 29, Minto St., Edinburgh.

WE should like to call the attention of our readers to a letter which has appeared in the *Lancet* and *British Medical Journal* of September 30, from Mr. W. A. Maggs, entitled "The Registration of the Dental as a Medical Student." The letter refers to the new regulation of the General Medical Council about to come into force, viz., that "on and after January 1, 1900, a dental or medical student will be required before registration to produce a certificate of having passed the first-class College of Preceptors Examination (or its equivalent), whereas until the above-named date the second-class certificate will suffice." In view of the probability of men now registered as dental students, but only holding the second-class certificates, desiring subsequently to take medical qualifications, Mr. Maggs asks: "Will the first-class certificate be demanded by the Council, or will the dental student, registered before January 1, 1900, be exempted?" He advises all dental students, registered with second-class certificates, who do not intend entering a medical school this year, to take out a course of chemistry from the present month at one of the recognised institutions, and to forthwith register as medical students.

WE are pleased to take this opportunity of adding our congratulations—and by this we mean, of course, the congratulations of the members of the British Dental Association—to those of our friends and professional brethren in France, on the mark of esteem and honour of which M. Charles Godon has lately been the recipient. Our eminent *confrère* has had conferred upon him by the Minister of the Interior the distinguished Order of the Grand Cross of the Legion of Honour. This high decoration has not fallen on unworthy shoulders; and it is particularly gratifying to find the work of more than twenty years of earnest zealous toil for the elevation of the dental world in France acknowledged in so handsome a fashion. M. Godon is unfortunately but little known in England, but across the Channel he holds one of the foremost positions in the dental profession. In addition to other important offices he is the Director of the Dental School of Paris, as well as one of its professors of dental surgery.

To M. Godon and the venerable M. Lecaudey belong the satisfaction of seeing, as accomplished facts, those many useful and needful reforms in French dentistry which they have for a quarter of a century advocated. France generally and the Dental School of Paris particularly, may have reason to be proud of a man who throughout his career has not only brought all his intelligence, energy, devotion, and steady loyalty to bear on every aspect of dental work, but has had the rare altruistic faculty of ever placing the wider general interests and welfare of the profession before those of his own private personal advantages and emoluments.

Our heartiest congratulations once more to M. Godon!

Miscellanea.

Dental Hospital of London.

The Walker Entrance Scholarship has been awarded to Mr. B. Peacock.

Guy's Hospital Medical School.

The following Entrance Scholarships and Certificates have been awarded:—

Senior Science Scholarship for University students: £50, Mr. P. N. Blake Odgers, Lincoln College, Oxford; and certificates to Mr. G. E. Malcolmson, Owens College, Manchester; Mr. F. H. Parker, Pembroke College, Cambridge; and Mr. H. Robinson, Trinity College, Cambridge.

Junior Scholarships in Science: £150, Mr. H. F. Bell Walker; £60, Mr. J. H. Clatworthy; and certificates to Messrs. G. Russell and H. H. Carter.

Entrance Scholarships in Arts: £100, Mr. F. Wood, Roan School, Greenwich; £50, Mr. H. S. Knight, Bancroft's School, Woodford Wells; £30 (Dental School), Mr. O. Black, Foyle College, Londonderry; and certificates to Mr. E. J. N. Aston, Jesus College, Oxford; and Mr. H. A. Watney, Trent College, Derbyshire.

Charing Cross Hospital Medical School.

The following Entrance Scholarships have been awarded:—

Livingstone Scholarship (100 guineas) to Mr. Philip Rees; Huxley Scholarship (55 guineas) to Mr. R. Huxtable; Universities Scholarships (each 60 guineas) to Mr. A. E. Taylor and Mr. H. F. Skrimshire.

Entrance Scholarships have also been awarded to Mr. L. Maitland (60 guineas); Mr. Harold Smith, a dental student (40 guineas) and Mr. H. W. Farebrother (30 guineas).

Benevolent Fund.

The following new contribution was received during September:—

Hern, Mrs. Wm., 7, Stratford Place, W.	£1 1 0

NOTE.—ANONYMOUS Letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 26, Wimpole Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

Subscriptions to the Benevolent Fund to the Treasurer, A. J. Woodhouse, Esq., 1, Hanover Square, W.

All contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 26, Wimpole Street, W.

Journal of the
British Dental Association

No. 11. NOVEMBER 15, 1899. Vol. XX.

Original Communications.

The Etiology of Dental Caries.

By J. SIM WALLACE, M.D., B.Sc., L.D.S.Eng.

[*Second Communication.*]

THERE are many theories at present in vogue which attempt to elucidate the cause of the increased frequency of caries of the present day. Chief among these is the theory of the degeneracy of teeth The belief in the inherent degeneracy of teeth has taken such a hold of many authors that they have gone still further, and advanced a theory to explain the cause of the supposed degeneracy. A favourite explanation has been the theory of the inheritance of acquired characteristics; the belief that in the development of the body in infancy the over pressure of intellectual education has deprived the teeth of their due proportion of nutrition, has also had its advocates; and recently another theory, that the abnormal temperature of the food given to infants acts injuriously on the developing teeth, has been advocated by Mr. Cantlie in the attempt to explain this degeneracy in teeth. The belief in the degeneracy of teeth due to the inheritance of acquired characteristics might be held by those few who still cling to the theory that acquired characteristics are inherited, were it not for the fact that the injury produced on the teeth by caries is essentially a mutilation, caused chiefly by acid, and it is now many years since the idea that mutilations were transmitted was altogether abandoned.

With regard to the developmental theory, I shall take the liberty of quoting from a recent article in the *British Medical Journal* on the subject, by Mr. James Cantlie, M.B., F.R.C.S., and with whom, in what I am about to quote, I quite agree. He says: "The developmental idea is a favourite theme; it is even seriously discussed by persons of respectable scientific attainments. The idea is, that in our quest after education, we are attracting a superfluity of blood to our brains and thereby starving our teeth and our jaws. A very pretty theory indeed, but it is not true."

Whether it is that dentists, in their endeavour to make an explanation of the increased prevalence of dental caries, have concentrated their attention on the teeth, and have been unable to look outside the teeth themselves for the causes of caries, or whether they have been confused by the loose use of the word degeneracy, I can hardly say. To say that the prevalence of caries is due to the defective constitution of the tooth is a convenient way to evade giving a scientific answer to the question. But it has yet to be discovered and proved that the constitution of the teeth of, say, the Icelanders, in any way differs from that of the English, or in what respect the constitution of the teeth of the present day differs from that of our ancestors. Certainly the hygienic conditions of the English of to-day compare favourably with those of our forefathers or of the Icelanders; and as a matter of fact, the teeth of the present day are as perfectly formed from a chemical and microscopical point of view as are the teeth of those races which are practically free from caries.

In considering this subject it is well to observe what is meant by degeneracy of teeth. In one sense the teeth of civilised peoples may be called degenerate, inasmuch as they are deteriorated by the ravages of caries; but this of course cannot be called a *cause* of caries, otherwise we should be calling caries the cause of caries. This error is only fallen into by a few writers on this subject, and the degeneracy in teeth is considered by most authorities to mean a structural defect in the constitution of the tooth which renders it liable to be attacked by the acids which the micro-organisms give rise to in the mouth. Structural defects do occur, and when they take the form of pits or crevices, certainly facilitate the lodgment of carbo-hydrates and micro-organisms, and so give rise to caries; but these structural defects occur amongst the uncivilised as frequently at least as among the civilised.

Mr. Tomes says, "It would really almost appear as though bad teeth were inherited with more certainty than good teeth." This is apparently quite a general belief. The fact of the matter is that the teeth are inherently just as excellent in structure as they were generations before. Hereditary peculiarities, which may or may not favour the lodgment of food and micro-organisms, may be assumed to exist, but the reason for the increased prevalence of caries is due to the fact that foodstuffs are gradually becoming more apt to lodge in the mouth on account of their physical properties being changed; all hard, coarse, fibrous and gritty foodstuffs (which on being masticated cleanse the mouth) being gradually superseded by soft, fine, "short" and "sugar-coated" foodstuffs, which, on being squashed in the mouth, get jammed into all the crevices of the teeth to be worked into acid by the micro-organisms which are lying in wait for their appetising repast.

I wish now to deal more particularly with the subject of *heredity* in its relation to caries in teeth. Professor Weissman, who is perhaps the most generally accepted authority on heredity, makes the following definition:—"By the term heredity is simply meant the well-known fact that living organisms are able to produce their like, and that the resemblance between a child and its parent, although never perfect, may nevertheless extend to the most minute details of construction and functions." If we accept such a definition (which is true, whether we believe in Prof. Weissman's conclusion or not), then heredity refers to the fact of a certain *resemblance* of offspring to parent.

If we consider, as scientists do, that heredity is the potentiality of organisms or of their germ-plasm, by which certain peculiarities are repeated generation after generation, we cannot at the same time say that it is the potentiality of the germ-plasm by which peculiarities spring up in one generation which were wanting in previous generations. It is thus distinguished from spontaneous variation. Heredity therefore can in no way account for the *increased* amount of caries at the present day. As this point is of much importance and is generally overlooked, I shall repeat this truth in different language. Heredity refers to a fact, the fact of the *resemblance* of offspring to parents, though what many authors claim as caused by heredity is the supposed *difference* of the constitution of the teeth of the present generation from the constitution of the teeth of ancestors.

In speaking of the hereditary nature of disease, John Hunter says: "I do not know that we have an instance of observation which proves that the circumstance of a person's having had the disease renders him more liable to communicate that susceptibility to his offspring than if he had only the susceptibility for the disease without the action taking place. If it was a fact that the parents having simply had the disease in some degree entitled their offspring to it, the human species would soon become extinct in those places where such diseases arose; and if the parents having had the disease increased the susceptibility in the offspring, both smallpox and lues would have become incurable by this time. So that the immediate cause, whatever this may have been, does not, in consequence of its having had its full effect, either give, or even add to, the disposition for such action" (Hunter's Works, Palmer's Edition, p. 358). And the truth of Hunter's observations is borne out by the attitude of scientists at the present day.

Furthermore, it is generally admitted that the predisposition to certain diseases among different races is inversely proportional to the number of generations during which the disease has been prevalent. Thus, for example, malarial fever is less liable to afflict peoples who have for generations lived in malarious districts; and measles is a much more terrible disease to certain tribes where it has recently been introduced than it is among ourselves, where it has been prevalent for many generations.

There are two factors which influence the growth and development of organisms; one is *heredity*, the other *environment*. These factors are often confused. Let us take a simple analogy which will bring out what I wish to draw attention to. A chemist had a son who was also a chemist. The father frequently had stains on his fingers due to the falling of acid upon them. Likewise the son had frequently stains on his fingers from the same cause. We do not say that the stains were due to heredity or any inherent tendency, we say that they were due to the acid or to the environment in which the chemists worked. Nor do we say that the occupation which predisposed them to have stained fingers (viz., the fact of each being a chemist) was inherited. So, too, when speaking of the decalcification of the enamel by the acids produced by micro-organisms. The cause of the decalcification is due to the acid, and the predisposition to the presence of acid must be sought in the conditions which favour its presence and development. Only the other day I observed what appeared to me another instance of this confusion of heredity and environment. Dr. Black (*Dental Cosmos*, September, 1899), while combating the theory that the predisposition to caries exists in the teeth themselves, continuing, says: "I suppose the hereditary predisposition of certain families to caries has been so generally observed that it will not be questioned, and only needs mention. In the practical consideration of cases as they are presented to us when we have the care of families of children, the hereditary predisposition to caries is of the first importance."

I think he has been mis-led by not observing that what he calls a hereditary predisposition is really an environmental one, otherwise he would hardly have advanced the theory that the predisposition to caries is due apparently to the hereditary character of the oral secretions. This belief has certainly as little to commend it as the one he combats, since the environment of the teeth is altered directly and indirectly by every foodstuff which enters the mouth, and the oral secretions are influenced by the foods directly and indirectly, by the micro-organisms directly and indirectly, by the odour of food, and even by the thought of it. I think anyone will be able to produce the gelatinous coating he refers to as necessary for the initiation of caries by eating sweets, as mentioned in my last article.

We are certainly not justified in expecting a predisposition to the formation of acid to exist in the enamel, which is a wholly inorganic substance. We are therefore compelled to admit that the predisposition exists solely in the environment of the teeth. I have observed numerous cases, of some of which I have a written record taken when the teeth were either particularly ravaged by, or particularly free from, caries, and in no case have I found an instance where the foodstuffs which were usually consumed were not, as far as I could judge, sufficient to account for the freedom or otherwise from caries. And I am strongly of opinion that even the rapidity of the caries is almost solely due to the kinds of foods consumed, together with the other conditions already mentioned in my last article, and not to any inherent defective structure of the tooth itself. It will probably have struck most dentists, and I have seen it commented upon in works on dental surgery, that honeycomb teeth, which are the most grossly defective that we ordinarily meet with, are not apparently prone to rapid decay.

With regard to the fact that caries is generally found to affect some families more than others, the principal cause of this is that the foods consumed are, allowing for individual tastes, generally the same, and the cleansing of teeth is neglected or otherwise, according to the habits of the parents. The fact that caries is often strongly marked in certain families has given rise to the supposition that there is a strongly marked inherited tendency, although all that is strongly marked is the similarity of the environment, or, in other words, of the conditions—chiefly dietetic—which prevail in certain families. This "inherited predisposition" is supposed to extend to whole races, and is apparently assumed to be due to defective developments. Again, I must point out that the environment of the teeth due to dietetic customs does produce a tendency to caries, but that environment is not inherited. It fortunately happens that most, if not all, races, show plainly that it is not any inherited racial predisposition which is the cause of caries. Thus, for example, in the Caucasian race, certain branches are peculiarly affected with caries, others are almost wholly exempt from the disease. The most interesting example of this occurs in the Teutonic branch. The English have very carious teeth, while in Icelanders caries is almost unknown. The American Indians show the same fact both in North and South America; some have practically no caries, whilst others, chiefly living in cities, have a considerable amount. So it is with the Mongols. The Chinese have carious teeth; the Samoyedes are practically free from it.

Professor Wedl says: "If it be true that geological and climatic conditions, and the means of subsistence which are connected with the same, have such a preponderating influence in respect of the frequency of caries, then it is impossible to explain the fact that foreigners belonging to different races, who are exposed to the same conditions with the native inhabitants, still retain the typical structure of their teeth as well as that of their bodies, and continue to furnish the proportion of dental caries peculiar to their race. This is found to be the case with the isolated Sclavonic races of Austria, and the descendants of the Celtic race in France." Let us first discover if it be true that the foreigners belonging to different races are exposed to the same conditions as the native inhabitants. First, as regards the isolated Sclavonic races of Austria. It is one thing to live in the same country, and quite another to live under the same conditions. Thus on turning to the "Encyclopædia Britannica," ninth edition, we read, "The population of Austria is made up of a number of distinct races, differing from each other in manners, customs, language and religion, and united together only by living under the same government." From ethnographical details it appears that the Germanic peoples, generally speaking, centre round towns, unlike their Sclavonic neighbours, hence these Germanic peoples are more subject to the influences of a "civilised" diet, living as they do where there is an interchange of foodstuffs, which are much refined.

As regards the Celtic race in France it is easy to show that the foodstuffs, and consequently environment of the teeth, are different from those of the rest of the population. One of the principal industries of Brittany is fishing. Fish is plentiful. "Agriculture is in general in a very backward condition." "Dairy produce forms a very important item in the food of the people." "Industrial pursuits, except in a few seaport towns, which are rather French than Breton, have hitherto received little attention. The Bretons are by nature conservative. They cling with almost equal attachment to their local customs and their religious superstitions" "Encyclopædia Britannica," Thus it will be seen that the customs of these Celts, even as regards diet, differ considerably from the customs as regards *cuisine* of the typical French. Moreover, ethnologically, there is not a great gulf between the French generally and this more traditionally Celtic stock. The really great gulf between them is principally linguistic, so that from this point of view the argument that the French have bad teeth, and the Bretons good teeth, must rather be taken as an argument that the difference as regards caries is not racial, but rather a difference due to dietetic customs.

As to Dr. Hitchcock's remark, on the other hand, that "as geological, climatic, and social conditions exercise a preponderant influence upon the growth and development of the various races, mentally as well as physically, it is evident that the development of the dental organs cannot fail to be controlled by the same causes.

In this country, which is annually receiving large numbers of foreigners by immigration, the typical traces of race are usually effaced after the lapse of a generation or two, the descendants possessing all the peculiarities, and their teeth apparently being as liable to caries as the teeth of Americans generally." It is well known to biologists that these conditions do *not* exercise a *preponderant* influence on growth and development; besides, Dr. Hitchcock's statement is absolutely contradicted by the negroes in his own country (America) who resemble the African negro in every physical and mental characteristic, while the whites are almost indistinguishable from the whites of Europe. On the whole, however, as regards dietetics, there is a considerable similarity in the customs of the blacks and whites of America, and a considerable amount of caries in both cases. As regards the whites more especially, the dietetic customs of the various peoples who emigrate to the United States gradually change with the changes in pecuniary circumstances in which the children more especially are placed; and also as soon as they forget the language of the nation from which they sprang, they lose the customs of their nationality. Thus in a generation or two, generally speaking, they adopt the dietetics and customs of the Americans, and have carious teeth accordingly. If the typical traces of racial characteristics were effaced after a generation or two, or even after a score of generations, due to geological, climatic and social conditions, the sciences of anthropology and ethnology would require to be re-organised. It is, in fact, the extreme tenacity of typical racial characteristics, quite independent of geological, climatic, and social conditions, upon which both of these sciences are based.

To prove how mistaken Dr. Hitchcock's remark is, we find the English, in any quarter of the globe, retaining essentially the typical characteristics of their English origin (provided always there has been no intermarriage). Notwithstanding geological, climatic, and social conditions depending thereon, the Europeans of North America are as distinct from the North American Indians as the Europeans themselves. Intermarriage among other Europeans in America will certainly tend to obliterate the more minute racial differences. The mixture of Latin-American and Anglo-Saxon American probably does produce a somewhat different type than is to be found in any other part of the globe. But the point which I wish to insist upon is, that the people of America have caries to an amount much exceeding the average amount of the various races who emigrated to the United States. It has not yet been shown that the development of the teeth has suffered structurally by the crossing of the races, and indeed instead of the crossing being a cause of degeneracy in the structure of the teeth, resulting in caries in America at the present day, it should rather be expected that there should be less caries in that country, as according to the laws of heredity when varieties of a species are crossed there is a tendency to reversion to ancestral type.

Again, it appears to me that there is no other explanation of the excessive frequency of caries in the teeth of Americans than that which attributes it to the kind of diet to which they are addicted.

Crowns and their Varieties.

READ AT THE MEETING OF THE SOUTHERN COUNTIES BRANCH, OCTOBER 28, 1899.

By J. F. RYMER, M.R.C.S., L.D.S.Eng., D.D.S.Pa.

MR. PRESIDENT AND GENTLEMEN,—Although the subject of crowns has been brought before us so often, still it is one of such importance, that I trust that the short time we shall spend considering it will prove of some service. To begin with, before proceeding directly to discuss crowns, I should like to say a word or two upon the word "varieties." Almost every form of crown, which is in any way different to the old-fashioned pivot, has attached to it the name of the inventor; I do not wish to lay down the laws for other countries, where it may be the fashion to advertise professional names by inventing some little implement, any more than I should advise Chinamen to cut off their pigtails; but we in England know that advertising one's name in any form is not in accordance with the rules of the profession, therefore I think that it is absolutely wrong and unprofessional for any Englishman to allow his name to be advertised when he has discovered anything fresh. If, by your expressions of opinion, you come to the conclusion that professional inventors may allow their names to be attached to their inventions, then I see no objection why I should not also allow my name to appear in connection with one or two little specialities which I have got my chemist to prepare. I only mention this in passing; but I thought the subject of crowns, with varieties, afforded such an excellent opportunity of saying in public what for a long time I have been waiting to do, in order to obtain the views of the dental profession. The above remarks apply not only to crowns but to numbers of different instruments, &c. If other professions advertise, it is no reason why we should follow their examples; and I trust that later on you will kindly discuss this matter.

Crowns, and the crowning of teeth, play a most important part in the exercise of our profession, therefore it behoves every dentist to become acquainted with every detail in connection with the same. The old pivot tooth has been in use for many generations, but it is only in comparatively recent years that this old pivot made advances, until we come to the elaborate system of bars and bridges, which, after all, are only offsprings from the old " father " pivot.

Crowns may be considered under two great heads, viz.: (*a*) those intended for use in mastication; (*b*) those made for appearances. We will first take the " all-gold crowns," which I believe are the most useful. It is not my intention to describe how these are made; this would be waste of time, as you are all so familiar with the process. They are most useful in almost all cases where we find the teeth very carious, especially where large metal fillings will not hold; it does not signify if the teeth are alive or dead; roots of all descriptions, provided they are fairly firm, can all be capped by means of an all-gold crown with most satisfactory results, where proper attention is given to carefully, and evenly trimming the roots, so that the *cervical* portion forms a larger segment of a circle than that at the masticating surface, and great care must always be taken to see that the " bite " is perfect; if the bite is shallow, or the opposing tooth is elongated, then I always cut off the cusps of the opposing tooth to obtain a satisfactory crown. It is a very bad plan to cut the surface of a crown when once fixed, in order to get a perfect " bite," but I have *never* had any bad result from grinding the opposing tooth. What are the common causes of trouble in these crowns? I will enumerate some of them. *Firstly*, the tooth or root has been badly prepared, so that the cervical margin of the crown is not in perfect apposition to the tooth; this gives rise to irritation, due to accumulation of food under the spaces, so periostitis, &c., is the result. *Secondly*, toothache, and abscesses are set up, due to the teeth being badly prepared previous to the fixing of the crown. When practicable, I much prefer to temporarily fill the roots and teeth with gutta percha, and leave them for a short period; if no trouble occurs, then one may pretty safely fix on the crown. *Thirdly*, so often patients will come complaining of a vague, chronic form of toothache, which upon examination is found to be solely due to exposed dentine at the cervical margin, caused by the gold being cut too short. Let me urge all present never to fix a crown unless certain that the gold all round is below the cervical margin. I have recently had to cut off *two* good crowns owing to the cervical dentine being exposed. *Fourthly*, never use pure gold. Personally I prefer 18-carat; it is harder to work, but very satisfactory. I have recently had a case which will prove that pure gold is a mistake. A gentleman consulted me this month concerning his case, which had been undertaken abroad. It was beautiful work, the only fault being that pure, or almost pure gold had been used, and upon masticating, the gold had been, as it were, squeezed out, leaving sharp, sawlike edges along the surfaces; this I could easily smooth off, but it will occur again, and gradually the bite will be lowered.

When *not* to crown teeth. Never crown teeth in any mouths of children under the age of 12, viz., until the second molars have been erupted, as in quite 50 per cent. of cases it is advisable to remove the first molars or some other teeth. Again in crowning, never undertake the case for very nervous patients, viz., those who cannot stand pain; I have had now considerable practice in preparing teeth for crowns, but I always make a point of telling my patients that it is, and must be, a painful process, especially in cutting off the enamel in live molars; and again, when fixing with cement (I always use Poulson's), the pain is most acute for some minutes, it then dies right away. If you prepare your patients for shocks of this kind they make up their minds to bear it. Let me here state that I consider gold crowns and bridges, where practicable, the most satisfactory and useful work that we have in dentistry, and if the conditions as above stated are carried out, failures are few and far between. I am happy to say that for the last nine years I have personally enjoyed splendid health, and never have a sign of the indigestion from which I formerly suffered: this is entirely due to my excellent series of crowns so perfectly adapted by Dr. Peeso of the University of Pennsylvania, and to this gentleman alone I am indebted for my knowledge of the subject, and his methods I continue to follow.

Now we come to the secondd ivisions of crowns, viz., those made for appearances. I think without doubt that the Richmond crowns are by far the best, but I am perfectly aware that they take far longer to make, and require more skill and patience on the part of the operators, and unless we can obtain an adequate fee (say five guineas a crown) I think we are justified in placing on some other form of crown, which is good but may not last so long; for however much a dentist may be in love with his profession, it is his duty also to see that he is being recompensed sufficiently for his time and skill. Dentistry is a trying, although interesting profession, and we should all feel it a duty to maintain good fees, not only for our own sakes, but also for those dentists who have to follow in our footsteps. Richmond crowns are useful, and can be adapted to any roots, excepting the molar series. In order to obtain success it is absolutely necessary to see that the upper cervical portion of the gold collar fits accurately upon the root above the gum, as sometimes the root has decayed some considerable distance up the tooth socket. When once the collar fits well, then the cap can be finished and the crown made up as in an ordinary pivot. One great advantage with the Richmond crown over others is that the collar fits upon good cementum, and goes beyond all carious matter, so that when the cap is filled with cement, and pushed into position, one can feel certain that no further mischief is possible. A badly fitting Richmond crown is the worst form of any crown; let me here state that when the face of the crown splits or breaks (and this applies to any ordinary faced pivot) it can easily be repaired, without in any way interfering with the pivot. First select a tooth, then split the platinum pins, drill two holes in the back of the gold, which previously held on the old tooth, now put the tooth in position, the pins will go through these holes, open out the split pins, then take a pair of strongish pliers, having one portion well padded to protect the face of the tooth, now give several short sharp squeezes with the pliers, and the tooth will be perfectly firm. Be very sure that the bite of this repaired tooth is perfectly free, as the cause of fracture in crowns is almost invariably due to the bite not being free, either originally, or else from the opposing tooth having worked up, and so catching upon the edge of the porcelain, thus bringing about a fracture. Personally, I make a point of using Richmond crowns in preference to any other when circumstances above mentioned permit.

I pass on to the Logan crown, which to my mind is in many ways excellent, provided one has a perfectly healthy, firm and stout root, viz., one in which the pulp has just been devitalised. It is strong, very easy to adapt, and most natural in appearance. One great disadvantage with this crown is, when for some reason the crown breaks off, it is a long tedious task to remove the pin from the root if it has been properly fitted, and many a root is practically spoilt by the drilling process; the pin being of a slippery nature, the drill continually slips into the dentine, and by the time the apical portion of the pin is reached, often a false apex is made right through the root, and therefore unless great care is taken, another pivot fixed into the root will give rise to continual irritation and trouble. But if a patient is not blessed with this world's goods, or is in a great hurry, then I most strongly recommend the Logan crown, which gives such good results.

Another form of crown which I have used many times with success is as follows:—if a root is badly decayed above the gum, after removing the carious tissue I force up on this carious surface a piece of platinum, about as thick as thick parchment; upon its removal one gets an accurate impression of the surface in platinum. Now pierce a hole, and insert through it the gold or platinum wire which shall form the pivot, and wax it in position in the root. If all is satisfactory as to fit, then solder, and finish off the crown as in the Richmond or others. The advantage of this form of pivot is that the whole root, regardless of the size of the cavity in it, is filled with solid metal, and it is fixed in position with a little cement, as in the case of any other form of crown. I do not bring this before you as anything new, but some may not have tried it. Its advantages are its great simplicity, the rapidity with which it may be made, its strength, and lastly, the unlikelihood of its becoming loose.

The "Büttner" gold caps, although I cannot speak from practical experience, I believe have much to recommend them, and I think that Mr. J. H. Redman was one of the first to advocate their use. One great advantage of these caps is that they must fit the roots absolutely perfectly, owing to the fact that the size of the cap used is the same as that of the reamer; and in strong healthy roots they must hold a good position in the list of varieties of crowns. It is obvious, however, that the circumference of the collar must be smaller than the Richmond collar, as no surface of the root is cut away in the latter, the collars being always more or less of an irregular shape, just as the root is; whereas in the "Büttner crown," the root has to be cut in order to fit the cap, exactly the reverse of the former, so the strain of the crown in the "Büttner" must be greater than that of the "Richmond," owing to its being fixed into a smaller base. No doubt some present will be able to state with what success they have used these crowns. As they are purely mechanical, they require very little skill on the part of the operator, a steady hand being all that is necessary in order to keep the reamer in position, for this instrument has a knack of slipping unless great care is used.

It would be tedious, and serve no good purpose if I endeavoured to speak to you on the merits or demerits of all the other crowns advocated, but one form of crown suggested by Mr. Nash deserves mention; it is simple and economical. The principle is as follows:—first an ordinary tube tooth is fitted, a special pivot is also fitted up the root canal. If the bite, &c., is satisfactory, then the tube is sulphured on to the masticating portion of the pivot, afterwards the whole is cemented into the root; but I must confess that I fail to see how this form of crown can be satisfactorily adapted to molar teeth, where the canals vary so much in size and shape, although I believe it has its supporters.

There is also the "Newland Pedley" crown, which is useful on account of its economy, being suitable in hospital cases, strong and quickly adapted. I may also mention the "Dowel" crown, which, when finished, is almost the same as the "Logan," but I cannot understand why this crown was invented; it appears to me to be the same as the "Logan," the only difference being that the operator has the trouble of fixing the pivot into the crown. And we have, too, the "Evans'" all-gold crowns; they may be useful in order to save time, and also in regions where mechanical work cannot be done; but for myself I have always made my crowns for all patients, as different people have differently shaped teeth, equally with noses. No doubt these crowns save labour, but I fear it would be an impossibility to get the most important part of the crown to fit accurately, viz., the cervical margin. Lastly, we have the "Balkwill" crown, which I have used two or three times, unfortunately without that success which I fully expected. You are no doubt aware that the pivot, instead of being cemented into the root as in other forms, is inserted into a platinum tube, which is previously screwed up the root, a screw tap or worm having been first made up the root, by means of the special instruments. I have followed out all directions to the best of my ability, and to all appearances the crown has been firm and perfect, but in two instances, to my knowledge, the patient has returned in a few months with the crown loose, the worm in the root having given way. Owing to the large size of the opening in the canal it is almost useless to try and refix it, so I never now use the "Balkwill pivot," although the fault may be the result of bad manipulation. One other point I should mention in relation to crowns; if a root is badly decayed, almost to the apex, with practically no proper canal, it is a good plan, after cleansing and preparing such root, to remove the tube from an ordinary tube tooth, place this up the root and fill up the spaces with amalgam. It is astonishing how long these roots will prove of service; then any pivot you choose may be fixed in the tube.

Bearing upon the subject of crowns we come to bars and bridges, but time will not permit me to dwell upon them, and after all, if we can make good crowns we have also mastered the art of making bars and bridges. Even to-day there is the erroneous impression amongst medical men and the public at large, that bridges are unhealthy and insanitary appliances. A greater error could not exist. It is true that in the old days bridges were so fixed that food could accumulate and so produced an unpleasant condition of the mouth, but if care is taken to allow plenty of space to exist at the gum margin, nothing can be cleaner or more useful.

In conclusion, let me say, that although I have covered considerable ground, no one is more aware than myself of the fact that I have but "raced" over it, and I trust now that you will travel over the same course, but more thoroughly, then I shall have the pleasure of leaving this room with a good deal more knowledge than I possessed when I entered it. I thank you, gentlemen, for the considerate attention which you, not only now, but always, give me, when I have the great pleasure and privilege of bringing any subject before you.

A Handy Bench-block.

E. H. Keith, D.D.S., in a paper in the *Indiana Dental Journal*, says:—"A cheap and handy bench-block may be made by cutting a hard rubber ball into two equal parts and screwing one of the halves to the work-bench. It makes a better block than you can buy."

A Higher Dental Qualification.

READ AT NEWCASTLE AT AN INFORMAL MEETING OF THE MIDLAND COUNTIES BRANCH, OCTOBER 28, 1899.

By ALFRED COCKER, L.D.S.I.

THE various phases of dental education have for a considerable time occupied the attention of leading members of our Association, and it is with no small amount of trepidation that I venture to express my views on one of those phases, viz.—"a higher dental qualification." I fear there are many who may think that the subject has already occupied too much of our time, and I may be told by the indifferent that in our dental organisations dental education has passed through its infancy, and has advanced far and fast into practical shape. There is an old proverb which says, "the more thoroughly the field is digged the more fruitful the yield;" the more numerous the expressions of opinion the more likely we are to adopt that course which is most compatible with dental efficiency.

If I may use a metaphor, education is one of those things that makes the world go round, and just in proportion as we drive on to a more complete educational attainment, so will our knowledge become power, and will be exercised for the physical maintenance and betterment of our race.

In the arena of our dental meetings, new methods are made known, new theories are set forth, and results are recorded for the help, the guidance, and the stimulus of the practitioners of dentistry. All this is very desirable and necessary, but it will not be argued, I think, that such intercourse with fellow practitioners is likely to brand one with that educational stamp which nurtures self-confidence, and carries with it that matter of fact self-assertion which plays such an important part in educating the laity to the necessity of the dental art. Our educational needs require to be brought into more perfect accord with our daily requirements, and the object of our education should be to go hand in hand with practice, and should be such that every part of it is applicable. There is an innate desire for activity and growth in our associations, and an abundance of evidence to prove that some stimulus is needed to encourage further study of the subjects required for the L.D.S. degree, and of such other subjects as have either a direct or indirect bearing on dentistry, in order that all practitioners may at least have the opportunity of learning whatever may appertain to the science and art of dentistry. There is undoubtedly a need for a yet higher station of intellectual ascent, offering a means whereby students may be impelled to raise themselves into a higher sphere of learning. Under existing conditions, our educational system is in a fairly satisfactory state, and amongst those who are directly engaged in teaching in our schools are many who have established for themselves a world-wide reputation. The conditions, however, are far from satisfactory throughout the whole course of a student's career save the practical training, and perhaps none more so than those of pupilage. Here, one standard of preliminary education should be required before the professional studies are commenced, so as to ensure that the fullest course of study is available, in order that the student may not be blocked at any stage for the want of having passed the particular preliminary admitting him to other degrees. The weakest point in the system of pupilage is the one that exists in the dental schools, viz., the want of efficient teachers. I see no reason why teachers of any branch of dentistry should not be compelled to prove their competency before entering upon any such undertaking. Teachers are too often selected for their learning rather than for their ability to teach.

The preliminary examination, mechanical training, the fitness of teachers and examiners, are all questions awaiting a more satisfactory solution, and which would be better cleared up before a higher dental qualification is adopted. The training, the equipment and the educational requirements ought to be identical in all our teaching institutions; and there should be one and the same examination, so far as is possible, for all students, of whatever school. What may eventually evolve from the great variety of opinions which have from time to time been expressed on these points it is impossible to contemplate, but the growing tendency to organisation is being accompanied by a corresponding growth and development of our educational system. In the prescribed curriculum for the dental licence, modifications have from time to time been made, and less needful matters struck out whilst more important ones have been added; and whilst the syllabus may not yet be all that one could desire it is considerably more rational than it has been hitherto. It is further so comprehensive that any extension would be made at the expense of the more important subjects, and would be likely to be a very questionable benefit.

Nevertheless we shall all acknowledge, I think, that the educational attainment necessary in order to obtain the dental licence is so far complete as to ensure the competency of the possessor to practise dentistry. On the other hand, the amount of knowledge required is the least that can be accepted, and cannot be described other than as elementary, since the whole of the subjects (with but one exception) have to be crammed into the short space of two years. It certainly is not enough that the elementary knowledge required for the L.D.S. degree should be the goal of one's ambition.

We all know how the whole dental world vibrates to any touch of operative novelty, whilst the latest and most acceptable theory is only known to the few, notwithstanding that theory and practice are indissolubly united, and are dependent one upon the other. At all our meetings the keenest interest is taken in whatever is practical, whilst all but the few are indifferent to anything theoretical. It is reasonable that that knowledge should be prized most which best fits a man for his special duties; but we should remember that practice is the outcome of theory, and it is to the theoretical side that we must look for a higher degree. The practical side will ever take care of itself, and will issue like every running stream from its source. What inducements, then, are offered to dental students who are desirous of taking more advanced courses? There are degrees in surgery, in medicine, in science, and in chemistry, all of which require more advanced knowledge than is needed in the corresponding subjects for the dental licence, but dental students seeking further degrees than the L.D.S. are advised to take the "conjoint." In doing so, however, much needless knowledge is obtained only to be forgotten, and it is on this account that many are in favour of a higher dental qualification. It is very undesirable to teach what is not likely to be remembered, and in the interests of educational economy, if students are to be encouraged and stimulated to increase their knowledge, it can best be done by offering a degree which, on the face of it, implies a more extended knowledge of the particular subjects appertaining to dentistry. Greater culture will, without a doubt, advance the public welfare and our own, and further than that, it is a sure road to rid us of empiricism and quackery. The want of knowledge often puts a person decidedly out of beneficial communication with the superior and more cultivated, and it is on this ground I would advise dental students to take either the diploma of the conjoint Board or the B.Sc., if only for its monetary worth—all the better, of course, if a student was prompted by a desire for knowledge. Intelligence and ignorance are not compatible conditions, and are directly opposed to one another; in other words, the greater the educational dissimilarity the less the mutual relationship, and the "conjoint" is often taken by students for no other reason than that they are likely to receive greater support from medical practitioners. There is, in fact, a sort of conventional feeling between doctors and dentists which is greatly deepened towards those of the latter who have taken the "conjoint."

This is the sentimental side of the question, but there is surely enough in the subjects bearing upon our daily work to hold that mutual relationship which so largely exists between the two professions. No one, I think, will deny that there ought to be more than a friendly contiguity between doctors and dentists, in a professional sense, but that relationship can only be maintained by proper connections, and there is no doubt but that the conjoint diploma greatly favours it; but, on the other hand, its acquisition necessitates the expenditure of a considerable amount of time in studying unnecessary subjects. This is a fact, I think, which no one will attempt to dispute, and which in the interests of educational economy ought to engross our attention with a view to remedy. We need consequently, to provide a higher education which is more commensurate with our educational needs, and which is better calculated to adapt students to their special work. This ought to be our *raison d'etre* for a higher qualification. I am confident there are views to be unfolded of a more practical worth, which will offer to dental students a more acceptable curriculum and a better degree than at present obtains. In taking the "conjoint" at least two years of the most valuable time of a student's life are lost for practical dental training, and at a time when the faculties are most receptive, and when the hand is most likely to acquire that dexterity which best fits it to perform dental operations. Practically, then, the student who simply attains to the L.D.S. degree ought to be a better operative dentist than the one who, in addition, goes in for the "conjoint." On the other hand, the greater knowledge required for the latter better fits one to cope with such cases as may be pathological and constitutional. As to whether the one outweighs the other, I must leave you to settle for yourselves. Similar arguments may or may not meet the case of a student taking in addition the B.Sc., according to the subjects he takes and the university at which he graduates. As for a strictly dental degree, there is, and will be some confusion as to whether it ought to emanate from a university, or from a licensing body, but when we come to consider the subjects which will best conduce to the most complete dental education, it is at once evident that they are not those which would be entertained by anybody other than a university. Universities are, in my opinion, the only institutions where our special needs can best be met.

In considering the question as to what the degree ought to be we should, I think, be guided by the degrees to be obtained at our universities in medicine, surgery, science, divinity, law, music, &c. In all these it is Bachelor, and finally Doctor, of the respective subjects in which a student graduates, and should any one of our universities see fit to offer us a degree, the one that would appear to best imply the character of the subjects would be "Bachelor of Dental Science" and finally, "Doctor." I strongly hold that, whatever degree may at any time be offered to us, it should be a strictly dental one, and such as would not qualify a student to practise any other branch of either surgery or medicine.

Education is at the present time fast becoming systematised, and special training is everywhere being offered for special work; and if we are to keep pace with the times, we must make up our minds as to whether a higher dental qualification is needed, and act accordingly; and if our decision be positive, we must make an appeal to such bodies as are most likely to gratify our ambitions.

The progress of truth is slow, but in the ordinary course of things it is certain and effectual, and on this slow but gradual progression the reasonable hopes of benevolent reformers must be generally founded. Every judicious attempt, however, has the merit of accelerating and contributing to a desirable end.

DISCUSSION.

Mr. **HEADRIDGE** said the question was at the present moment taking a very practical form. It came before the meeting at Ipswich, and was negatived. Since then the matter had progressed, and he was glad that the London University Commission had suggested the advisability of nominations to the boards of medical faculties who were to be nominated on those boards, and what course of study would be mapped out for that dental degree should be the question that would come before that Association. He thought it was their duty to formulate their ideas.

Mr. **GADDES** said he expressed himself at Ipswich, and was glad Mr. Headridge had expressed himself now as he had not done at Ipswich. He thought it would be desirable to hear some of the views of their Newcastle friends who were connected with dental education in this district.

Mr. **BRUNTON** said Mr. Cocker had told them that the principal degree granted would be Doctor of Dental Science. If that were so it would introduce rather a misleading denomination. D.D.S. was already a recognised degree in America, and it might be mistaken for that. The present dental qualification was a license, and if the other qualification was to be a higher one, would it not still have to be a license?

The **PRESIDENT** said his feeling was that it would be a mistake on their part to apply for a doctorate at the universities. They professed to practise dental surgery, and it seemed to him they ought to work in that matter on the same lines as the men who professed surgery did. They knew that a man who professed surgery never used the term doctor at all; if he was an M.D. he did not use the title. His feeling was that it would be a mistake to apply to the universities for any degree which gave a man the right to call himself a doctor. They had in that matter to a large extent to follow the traditions of English nationality. He rather thought Mr. Cocker was aiming at a single and uniform qualification for the whole country. That was very ideal, but he thought it was absolutely out of the question. He thought that probably the educational expert would be at variance with Mr. Cocker in restricting the education so much to what was severely practical.

Mr. **JAMESON** (Newcastle) agreed in a great measure with what Mr. Cocker had said with regard to the higher qualification. He supposed the general idea of all that talk was to advance the dental art. His idea was that they would never advance till they got more practical work. Two years seemed far too little for a dental student to acquire sufficient knowledge and dexterity. He advocated an increase of the curriculum to five years, that the student should take three years' dental hospital practice, and pass a stiff examination in practical work.

Mr. **GRAYSTON** said he would like to hear a paper on the higher education of the patient. It was just as important as the higher education of the dentist.

Mr. **LODGE** was in favour of a higher dental qualification, if it could be agreeably arranged, either with the universities or the Royal College of Surgeons. He would make a university matriculation a *sine quâ non* for a candidate who wished to enter for the higher qualification. He would lengthen the mechanical pupilage from two to four years, and make it necessary that science should be introduced into the preliminary examination. He would have an examination at the end of the mechanical career, and would not allow a gentleman who could not pass that mechanical examination to commence his hospital career. He would lengthen the hospital career. He hoped the title would not be Doctor of Dental Science, but some other title which would indicate that the gentleman had studied far above what perhaps in the future would constitute the L.D.S.

Mr. **COCKER** said the theoretical side was undoubtedly the weak side of their profession, and it was on that side he would ask for a higher qualification. Mr. Lodge's views were very excellent, but they had to take into consideration the pockets of those who sent their sons to be educated in dentistry. If the curriculum was to be extended to the extent some would have it, instead of the degree being simply open to those who could afford it, they might perhaps find it eventually run in connection with technical institutions. Whether that wa desirable or not was an open question. If they entertained for one moment the extension of time required before the student could commence practice, there would be some risk of the qualification which was granted to students being handed over to some such organisation as the City of London Guilds' Institute.

Prolongation of Nitrous Oxide Anæsthesia by means of a Tube passing through the Mouth Gag.

READ AT THE MEETING OF THE MIDLAND COUNTIES BRANCH, OCT. 28, 1899.

BY R. KEITH COMMON, L.D.S.E.

IN the July issue of the British Dental Association Journal no less than four accounts were published of the prolongation of nitrous oxide anæsthesia.

First, Mr. Cocker gave a demonstration by means of Coxon's tube, at the Midland Counties Branch; then Messrs. Jones and Lennox showed the advantage of Mr. Alfred Coleman's method with the nose-piece at Ipswich; and Messrs. Stephens and Caush, at the same meeting—by a strange coincidence—demonstrated with an apparatus which, if not exactly the same, seems to very nearly resemble that which I exhibited about the same time to the members of the Scottish Branch.

Your Secretary has kindly asked me to give you a description of my method, and if I fail to make my meaning as clear as a demonstration would do, I trust that I will, in a measure, overcome that difficulty by means of the accompanying illustration.

By way of preface I may say that for many years back I have been seeking ways and means whereby I could do all my anæsthetic work with gas alone, and although perfection is not claimed for what I now show you, I am satisfied that it is a distinct advantage over anything I have hitherto tried.

The three gags exhibited are as many as I find necessary; they are rigid, of aluminium, and were made by the Dental Manufacturing Company. The tube passing through the stem has a half-inch bore, can be moved laterally, and is bent so that no kinking of the rubber tubing can occur at the mouth. The perforations at the end of the tube I found necessary to admit of a free passage of gas should the tongue obstruct the main exit. The gag can be used for either side of the mouth by simply turning it upside down. The gas apparatus I find most convenient is Smithard's; the supply being easily controlled by the foot, it does not distract the attention of the assistant in any way. After the gag has been adjusted to the most suitable side of the mouth, the gas is given in the ordinary manner, allowing the bag to be only three-quarters distended. When the patient is thoroughly anæsthetised the stop-cock is closed, the face-piece removed, and simultaneously the gas-bag is fully distended, a slight pressure being kept on it by the assistant holding it against his left side, and at the same time, with his right hand, he keeps the nostrils of the patient closed. The latter action I consider most important, and demands the closest attention.[1]

Sometimes I find patients can be kept insensible for quite a long period without touching the nose; others, again, require it all the time. The proper amount of nostril-closing can only be acquired by experience and careful watching. I have repeatedly tried nose-clips of all kinds, but found them most untrustworthy; nothing, I think, compares with the fingers of an intelligent and reliable assistant.

As the operation proceeds, the patient may show slightly alarming symptoms in the extent of the cyanosis, but this is easily controlled by relaxing the pressure at the nostrils and admitting air. I seldom endeavour to remove more than fourteen or sixteen teeth at one sitting, preferring to make two operations, if I have more than that number to remove. When all the teeth have been extracted up to that point where the gag rests, it is, with a little force, loosened, put to the other side of the mouth, and the remaining teeth then taken out. To prevent the blood flooding the mouth I usually place a small sponge attached to a cord at the back of the mouth on the side on which I have last operated.

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[1] In the photo the assistant is not shown holding the nostrils, the object being to keep the face clear and so give a good view of the mouth.

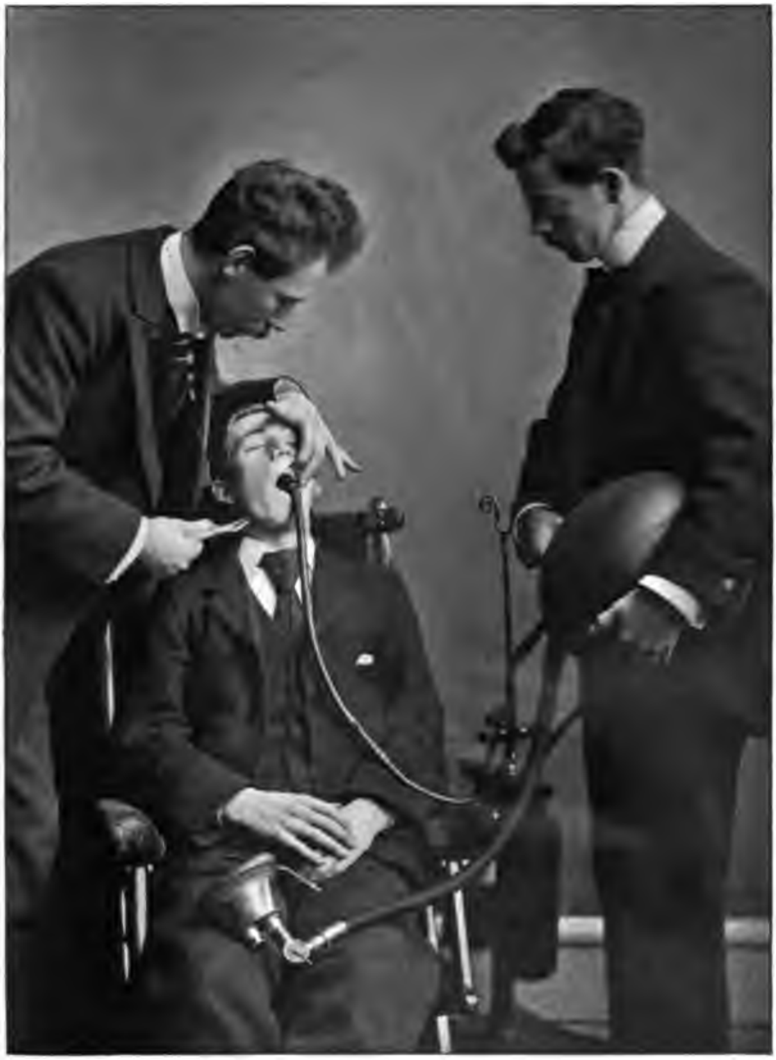

PHOTO SHOWING STAGE IMMEDIATELY AFTER REMOVAL OF FACE-PIECE, THE GAS BEING ADMINISTERED THROUGH GAG.

The duration of the anæsthesia is readily controlled, varying with the amount of work to be done; and in a record of cases extending from October, 1898, to the present time, it ranges from 1 to 3½ minutes.

In conclusion, I may repeat that I do not claim this system to be perfect, for, just as we find troublesome cases under the ordinary method, we cannot expect any mechanical contrivance to alter the mental idiosyncrasies of our patients.

Abstracts and Translations.

A Plea for more Extensive Operations in the Treatment of Malignant Disease of the Jaws.

By J. PAUL BUSH, M.R.C.S.

LECTURER ON OPERATIVE SURGERY, UNIVERSITY COLLEGE, BRISTOL; SURGEON BRISTOL ROYAL INFIRMARY.

M. W., a young woman aged 16, was sent to me from the country for consultation at the end of last year. The history was shortly this :—Some nine or ten months previously she first noticed pain in the upper jaw, and a month or so later her friends noticed that the upper lip appeared swollen. It was then seen that the upper jaw was enlarging in size ; the pain then ceased.

Six weeks before I saw her she had been admitted into a hospital, where a small tumour the size of a hazel nut had been removed from just to the left of the middle line. The history was that the wound had healed, but at the end of a couple of weeks the tumour was seen to be growing again, and now rapidly ; the growth had been examined under a microscope and diagnosed as sarcoma. Four weeks after this first operation she was seen at the same institution, when it was growing so rapidly that it was decided that nothing more could be done for the poor girl. When she came under my notice there was a moderately firm swelling situated more to the left, but invading also the right superior maxillary bone, extending from above the first left molar, across the middle line to above the first bicuspid tooth on the right side ; this growth, which was pushing forward the nose markedly, was also extending into the mucous membrane of the floor of both nares, considerably narrowing these openings ; there was also marked bulging down of the palate on the left side. The tumour was not growing from the margin of the gum and the teeth, but had all the appearance of growing from within the antrum. I kept her under observation for ten days, as it was thought we could do very little for her during which period the swelling increased in size, the teeth became loose and pain became extreme. At the earnest request of herself and her friends I decided to operate ; this I did by the usual incisions on each side of the nose and division of the upper lip in the middle line ; after cutting through the vomer I was able to turn the nose upwards ; I then sawed through the lower portions of the nasal processes downwards and outwards to immediately in front of the first molar on each side; having previously cut through the mucous membrane of the palate with the knife, I chiselled through the line of articulation of the palate with the superior maxillary in the mouth, and so removed the bodies of both superior maxillary bones, together with the tumour.

There was considerable hæmorrhage, which was stopped by a large plug of iodoform gauze. The nose was fixed into position, and the divided lip sutured.

She made an uninterrupted recovery, and went out of hospital the end of February. About three weeks after operation my colleague, Mr. W. R. Ackland, made her a temporary upper jaw; this she only wore for some hours in each day, to prevent the upper lip and nose from falling in. In March last there was no sign of any recurrence, and I re-divided the upper lip, and performed a modified operation as for harelip, as the mucous membrane had got drawn upwards in the cicatricial tissue in the nose. An excellent permanent jaw with teeth was now fitted by our dental surgeon, and thanks to his manipulation the girl's appearance is so good that she has obtained a situation in a fashionable drapery establishment in the West of England: very few would notice anything wrong in her appearance.

She came to see me a few days ago, and presented me with her photograph.

Under the microscope the tumour was evidently a rapidly-growing small spindle-celled sarcoma.

This case, at any rate to me, is most instructive, as it was doubtful whether I ought to attempt removal; so many months have now passed, and the patient is so well that I have every reason to believe there will be no recurrence.

The specimen shows that the tumour is situated almost in the middle line between the right and left bones, and I should like to suggest that perhaps it commenced in the premaxillary bone.—*British Medical Journal.*

A Convenient Modification of the Paraffin Imbedding Method for Section Cutting.

By T. LAW WEBB, M.R.C.S., &c.
PATHOLOGIST TO THE SALOP INFIRMARY.

THE fine results obtained by the usual paraffin methods leave little to be desired, especially when the tissues to be sectioned have been carefully "fixed" and dehydrated. But the usual process is a long one. The oil of cedar-wood does not always penetrate the tissue as quickly as could be wished, and must be carefully replaced by the paraffin in order to get good sections. Usually one or two successive paraffin baths are necessary. In ordinary histological or biological work there is perhaps no need to hurry any stage of the process. But in pathological work it is frequently of great importance, for the purposes of diagnosis and prognosis, that the section-cutting should not take too long. This being so, any method of shortening the time necessary for infiltrating with the paraffin, or with the clearing agent which precedes it, is well worth considering. In describing the procedure I have found to be most expeditious and at the same time satisfactory in giving generally good results, I shall not say anything about the previous fixation and dehydration of the material to be cut. Several excellent methods are given by Lee in the "Microtomist's Vade Mecum;" and also in "Methods of Pathological Histology," by Von Kahlden. I would only remark here that the pieces of tissue to be dealt with should be small, and not too thick; say half an inch square, and not more than the eighth of an inch in thickness; otherwise the fixing re-agent may not penetrate throughout the tissue, or may take a long time to do so. Also the dehydration may be incomplete or slowly accomplished.

When, however, the material has been long enough in absolute alcohol, it should be placed in oil of aniseed. This, even in the cold, penetrates rapidly, so that the tissue is quite translucent in an hour or less. If, however, the bottle containing the oil be put into an incubator so as to raise its temperature to about 100° Fahrenheit (or a little less), the "clearing" will be complete in twenty minutes. The tissue may then be taken out of the oil and placed at once in the bath of melted paraffin. Before doing this, superfluous oil should be removed by pressure between the folds of a piece of filter-paper.

When it is desired that a very rapid preliminary examination should be made, which, however, shall not preclude the use of classical methods in a more deliberate way later on, it is well to remember Kuhn's instructions. He has advised that the dehydrated tissue be put into the oil of aniseed as above, and when saturated with the oil, be placed upon the plate of a freezing microtome. In a few moments, by means of the ether spray, the oil and tissue are frozen hard, so that sections can be cut, freed from oil by alcohol, and then stained and mounted in the usual way. These sections will not be nearly as perfect as those made from tissue imbedded in paraffin, but they are often very instructive, and show sufficient detail to enable a diagnosis to be made at once. Certainly the preparations made in this way are as good as those which used to satisfy us in the days when the "frozen-gum-and-sugar" process was the only one used in pathological research.

And in any case, whether they are decisive or not, after taking a few sections from the surface of the piece of tissue in this way, the remainder may be allowed to thaw, and then can be put into the paraffin bath, and sections afterwards made of any degree of thinness. Thus the use of oil of aniseed not only makes it possible to considerably shorten the time required for "clearing," but it also permits of the rapid examination of a few sections by the freezing method. Often this is all that is required; but it is much more satisfactory to imbed in paraffin, and make careful sections of the mass. I have found that mineral naphtha is the best solvent for removing the paraffin from the sections, but have also discovered that this article varies greatly in quality. That purchased from some dealers sets up violent diffusion-currents in the fluid when the section is immersed, and seems too volatile and thin. Other samples, obtained elsewhere, have not this objectionable quality. The kind supplied by Messrs. Southall, of Birmingham, is excellent in every way, and moreover has not the disagreeable odour noticed in naphtha bought elsewhere. From the naphtha the sections are passed through absolute alcohol, and then stained suitably. When superfluous colour has been got rid of by washing, the sections are again brought into alcohol to dehydrate them for mounting in Canada balsam. From the alcohol I pass them into oleum fœniculi, which I find an excellent clearing agent, and one which combines readily with the

Canada balsam. It is convenient to use it in the following way:—Take a clean cover-glass, and by means of forceps immerse it in the oleum fœniculi, and with a mounted needle guide the floating section on to the glass. Then lift gently from the oil, and wipe carefully the cover-glass (on the side unoccupied by the section) with a clean soft rag. It will be found quite unnecessary to remove any oil from about the section with blotting-paper, as the oil of fennel is very volatile, and evaporates to dryness in a few minutes. In fact this volatility is its most useful property; for it will be found that by the time the under surface of the cover-glass has been wiped, the upper surface with the section thereon is partially dried, and just ready for mounting. A drop of Canada balsam being let fall on the section, it can then be permanently mounted.

Thus by using oil of anise before the paraffin bath, "clearing" is much hastened, and the freezing method can be practised; whilst the use of oil of fennel to clear the sections before mounting also shortens the time which must be given to this final operation. Oil of fennel also possesses the advantage of not washing out the aniline colours.—*Birmingham Medical Review.*

The Systematic Treatment of Deciduous Teeth.

READ BEFORE THE UNION MEETING IN BALTIMORE, JUNE 4, 1898.

By J. W. COWAN, D.D.S., M.D.S., Geneseo, N. Y.

We will first consider the treatment of the teeth of that class of juvenile patients whose parents have unreservedly placed them in our charge. The first step should be a concise lecture to the mother upon correct dental hygiene, that she may be able intelligently to put into practice the duties devolving upon her.

It is advised that about a month before the first tooth is expected to be erupted the gums be given a thorough massaging three times daily, that the child may become accustomed to having its mouth operated upon before the inflammation accompanying eruption has manifested itself. If this practice is carefully followed, it will very rarely be necessary to resort to lancing.

As soon as the first tooth has appeared, the process of keeping it free from deposits is commenced. This is accomplished with a short section of nursing-bottle tubing, drawn over the end of a piece of orange-wood, allowing the rubber to project about three-sixteenths of an inch, used much in the same way as we use a rubber cap on a mandrel, excepting of course the motion is simply a hand motion instead of a rotary one. This instrument will very effectually clean the incisors and canines on their labial surfaces. The approximal surfaces must be as thoroughly cleaned with silk floss, or, what is better, small rubber bands drawn between the teeth.

By the time the posterior teeth are in place, the little patient will have become so accustomed to the operation of having its teeth cleaned that a brush may be used. A dentrifice of precipitated chalk and sugar and a weak solution of listerin may be used to advantage, and if acid conditions are discovered Philip's milk of magnesia will be found the most serviceable and convenient neutraliser. As the teeth erupt, a careful examination should be made by the dentist at least once a month, and note made of the approximal surfaces, especially of the lateral incisors and the molars, and should irregularities of those surfaces be found which would invite the lodgment of particles of food they may be later polished smoothly with cuttlefish discs. This polishing, however, must not be attempted till the patient has acquired sufficient acquaintance with the dentist to submit cheerfully to the operation. It is particularly necessary to thoroughly polish the distal approximal surfaces of the second molars, so that when the first permanent molars shall appear their anterior approximal surfaces may the more easily be kept free from food particles.

On the discovery of imperfections in the grinding-surfaces of the baby teeth, they are excavated as thoroughly as the circumstances will allow, that is without inflicting actual pain, and the fissures filled with cement if the cavities can be kept at all dry. If the saliva cannot be controlled, then copper amalgam or pink gutta-percha is used. Copper amalgam, as you all know, is in many cases a very unreliable material, but one quality it does possess in a remarkable degree : it will arrest decay, and if it does wear away, where the patient is under perfect control a little may very readily be added. I prefer gutta-percha, however, and only use the copper amalgam where the teeth seem to be quite below the average in structure.

You will observe that I have said where imperfections are discovered those places are filled, and I mean by that that the work should be done before decay has commenced in the fissures or sulci. You will say the treatment indicated is not practicable in the large majority of cases, and I know full well that this is so, but in the practice of every dentist there are most surely a few cases where this system may be followed, and where it has been put into practice the results are a satisfaction to the soul of the dentist, a comfort to the parent, and a source of health to the patient.

Now, to take up the other class of young people who are brought to us in the various stages of indisposition. The first step, as before, should be a distinct understanding between the dentist and the parent. The assurance should be given that if the parents do their full duty a pronounced improvement can be effected ; but should the parents decline to assume their share of the responsibility, it will be better far to decline the honour of trying to put the child's teeth in order. As in the first class of cases, the confidence of the child must be secured before operations are undertaken. Should extensive approximal decay be found, the cavities should be prepared as thoroughly as possible, treated with nitrate of silver, and filled with base-plate gutta-percha, as far as possible obliterating the spaces between the molars, the fillings being inserted separately, but in close apposition. The cavities in the anterior part of the mouth are filled generally with cement. Cavities in pulpless teeth are excavated, canals cleaned out, sterilised with carbolic acid and canals injected full of liquid paraffin, the paraffin being liquefied in a hypodermic syringe under hot water, filling the cavities in the same manner as in the case of vital teeth. It is most desirable to avoid the devitalisation of the pulps in the temporary teeth, as the process of absorption of their roots would thus become a pathological action instead of the natural physiological one, and erupting permanent teeth may very easily be deflected from their proper course by coming in contact with the unabsorbed portions of the roots, and irregularities result.—*Dental Cosmos.*

A Rare Abnormality of the Mouth.

By GEORGE W. GRIFFITHS, M.A., M.B.

On May 19 I was called to attend Mrs. S. in her sixth confinement. Before my arrival the child (seemingly a healthy male) was born ; it was at about the eighth month of gestation, and cried in an apparently natural manner. In the evening I was asked to see the child again, as neither mother nor nurse could make him swallow anything. On examination, the gums were found to be completely adherent to each other, and the cheeks to the gums posterior to the position of the future canine teeth. With some difficulty the adhesions between the gums in front were broken down by the finger sufficiently to enable him to swallow diluted milk slowly administered with a spoon. He refused the breast, but sucked strongly at a finger introduced pretty far back into the mouth. A cleft, apparently confined to the hard palate, was also discovered, from the sides of which two small fleshy ridges hung vertically downwards. Next evening I had again to visit the child, and found him cyanosed, but artificial respiration with elevation of the angles of the jaws soon restored him. The heart was examined, and found normal. A second time cyanosis supervened, but the nurse, following my instructions, treated it in the same manner with a like result. A third attack, however, proved fatal during the night.

A *post-mortem* examination was not made, but permission to explore the mouth thoroughly was given. A gag having been introduced, the exertion of a pretty considerable force was found necessary to separate the jaws sufficiently ; motion took place at the joint, there being no evidence of ankylosis. Only the posterior half of the tongue was developed, that organ looking like the stump after excision of the anterior portion ; there was no frænum linguæ ; the stump of tongue was found closely applied to the cleft in the hard palate. The soft palate was continuous with the posterior wall of the pharynx ; there was no opening of the posterior nares and no uvula. As far as could be ascertained by the touch, the epiglottis and larynx were normal. Evidently death was due to the tongue obstructing respiration through nose and mouth at the same time.

The points of special interest in the case are:

(1) The fact that the child cried loudly and naturally immediately after birth, notwithstanding the great abnormality of the buccal and nasal cavities.

(2) The unusual nature of the deformity.

(3) The embryological point of view. Are the adhesions found to be considered as originating in an arrest of development (as the cleft in the palate presumably did), or in a process due to inflammation or the like taking place subsequently to normal development? I may add, in connection with this point, that there was no evidence of syphilis, and the five elder children are alive and healthy.—*British Medical Journal.*

Death from Hæmorrhage after Tooth Extraction.

It is reported in the lay press that Lieutenant Commander Mason, who was present at the battle of Santiago on board the *Brooklyn*, has died from hæmorrhage following the extraction of a tooth.

Editorial.

The Early Decay of Teeth.

THE care of children's teeth is a subject which has been occupying the attention of dentists to a much greater extent recently than in former years, and is a welcome feature of modern dental art. The efforts made by the leaders of our profession to inaugurate a system of supervision and regular dental treatment in connection with all our schools and institutions, and the good results attending these efforts which are already beginning to be recognised on every hand, have been commented on more than once in these columns. The able and interesting paper read by Mr. James Cantlie before the British Medical Association—a reprint of which appeared in the September number of this Journal—has given an impetus to the investigations which are constantly being made with the object of throwing some real light on the causes of the degeneracy which is pretty generally assumed to be taking place in the teeth of our nation.

Whether this degeneracy is an actual fact or not it would seem almost impossible to determine. The unreliability of the evidence given by our grandfathers and grandmothers as to the remarkably perfect dentitions which prevailed in the days of their youth must of course be taken into consideration ; it is often said of middle-aged or old people that " they forget they were once young themselves," and it may be said with equal truth of many of our seniors that they forget that they have ever had toothache. Nevertheless, it may safely be assumed that dental decay is not on the *decrease*, and as many observers are of the opinion that sound teeth are more rarely met with in children to-day than in previous generations, it behoves us all, as members of a profession which has for its object not only the cure but the prevention of dental caries, to set before our minds such facts as we are able to lay hold of which will throw any light upon this hypothesis, and to conduct our investigations with a view to discovering the real causes of what Mr. Cantlie speaks of as " this premature and abnormal decay."

Theories plausible and absurd, theories elaborate and simple, have been and still are being advanced: sweetmeat - eating, developmental changes, constitutional conditions, civilisation, heredity, and numberless other habits or circumstances have been suggested as explanations; all have met with their supporters and borne their share of ridicule. Mr. Cantlie sets them all aside, and looks to causes which, he considers, "are capable of demonstration and arrest if we have but the courage to deal with the question."

In the first place he draws our attention to the fact that the offices of the wet nurse are no longer called into requisition; artificial food, administered by means of the feeding bottle has, in the majority of cases, taken the place of human milk supplied from the breast, and the temperature of the food so taken, instead of remaining at about 99° F. throughout the process, suffers a decrease of about 20° towards the end of the meal—a change which cannot be without its injurious effects upon the mouth of the infant. But human ingenuity has gone further, and has supplied the modern-day babe with a "comforter" to occupy its innocent attention while its nurse amuses herself by exchanging compliments with the preservers of the peace and the defenders of the empire. The muscles of the child's mouth are abnormally exercised in its ineffectual efforts to extract nourishment from a source where no nourishment exists; the action of the muscles has its effect upon the upper jaw, and the highly arched palate, with its accompanying deformity of "superior protrusion," is the by no means remote consequence. Add to these evils the invasion of the nasal space by the abnormal shape of the palate, and here we have an adequate cause of nasal obstruction and mouth-breathing.

Adenoids may or may not be more prevalent at the present time than in days gone by, but at any rate more attention has been drawn to their occurrence; and there is a strong temptation to concur with Mr. Cantlie in the belief that all these evils have a common cause.

This is not, however, the first time that the question of dental degeneracy has been brought before us in its true aspect; at the Annual Meeting of the British Dental Association, held in London in 1891, Mr. J. Smith Turner, the then President-elect, in his inaugural address[1]—to which we refer our readers, and especially Mr. Cantlie—dealt with the subject in a lucid and forcible manner, anticipating Mr. Cantlie's remarks as to the neglect of the duties of maternity, and the evil consequences likely to ensue from the substitution of artificial for natural foods. He was not inclined, he said, to blame civilisation so much as " the liberties we have, in the name of a spurious civilisation, taken with Nature and her unerring processes."

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[1] JOURNAL OF THE BRITISH DENTAL ASSOCIATION, vol. xii., p. 517.

No doubt the Committee appointed by the British Medical Association to examine into and report upon the subject will have much to tell us when the time comes for the publication of their report; meanwhile it is open to any and all of us to criticise the theories advanced in Mr. Cantlie's paper, to condemn them if we will, but at all events to do whatever is in us towards checking the evil, and discovering the actual causes of this early decay which is so generally considered to be prevalent, and which is likely, if left unimpeded, to have a very deleterious effect upon our race.

Correspondence.

We do not hold ourselves responsible for the views expressed by our correspondents.

The Use of Binding-Wire in the Application of the Rubber-Dam.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—On page 597 of the current number of your Journal appears a short article upon the use of binding-wire for the retention of the rubber-dam where the cavity to be filled extends far under the gum. I can quite endorse what is said as to the merits of this means of retention, having used iron binding-wire for this purpose for the past fifteen years. When I first commenced using wire for this purpose I tried pure gold wire, then platina wire, and finally iron binding-wire, well annealed ; in many cases I found the single wire failed to hold the rubber securely, the dam having a tendency to roll over the wire. I then took a gauge of wire about one half the size of the single wire, doubling it and twisting it carefully so as to make as perfect a twist as possible—see enclosed sample ; this I found worked admirably, and have many times succeeded in controlling difficult cases where I am sure it would have been practically impossible by any other known means.

Yours truly,
W. MITCHELL.

39, Upper Brook Street, Grosvenor Square, W.
October 19, 1899.

Association Intelligence.

The Honorary Secretary of the Association desires to emphasise the statement he has on several occasions previously made, viz., that anonymous communications relating to cases of irregular practices, or alleged infringements of the Dentists Act, cannot receive from him that attention he would wish to bestow upon them, or they may deserve.

Western Counties Branch.

A COUNCIL MEETING of the Western Counties Branch was held at the Grand Atlantic Hotel, Weston-super-Mare on Saturday, October 7, at 3 p.m., the President, Mr. John Laws, in the chair. Also present were Messrs. Apperly, Brown, Browne-Mason, Dudley, Genge, Goard, E. Goodman, W. H. Goodman, Hatton, Kendrick, Mason, Sanders, Thomson and Yates.

Letters regretting inability to attend were received from Messrs. Cornelius, Harding, Helyar, J. C. Oliver, Rogers and Gill Williams.

The minutes of the last meeting were read and confirmed. It was decided to get an expression of opinion from the Business Committee on the use of the letters M.B.D.A., and the Hon. Sec. was instructed to act accordingly.

The HON. TREASURER reported that he had £26 10s. in hand. He had paid one guinea towards the reporting of the Annual Meeting. Authority was given him to pay the expenses of the Annual Meeting.

It was resolved to hold the first winter meeting of members at Cheltenham on the first Saturday in February. Arrangements were left in the hands of the President and the Hon. Sec A Council Meeting will be held before the meeting of members.

The spring meeting of members is to be held at Exeter.

Afterwards at an informal meeting of members the Councillors were joined by Messrs. S. J. Hayman, Benson, Dawson, Goodman and N. Lean.

Mr. HAYMAN showed a most interesting model of a lower jaw of a young woman aged 24, in which the first permanent molars had been extracted and in their places two perfectly formed bicuspids had been erupted, making three bicuspids on each side of the lower maxilla.

Mr. SANDERS showed models of a canine eruption in the palate, a curious bite, and two cases of irregularities.

It is hoped that the members will make an effort to ensure a successful meeting at Cheltenham. The Hon. Sec. invites promises of papers, demonstrations, and casual communications.

The names of Mr. Dudley (Bath) and Mr. Mallett (Plymouth) were omitted from the list of the Council.

28, *West Southernhay*, *Exeter.* T. ARTHUR GOARD, *Hon. Sec.*

Midland Counties Branch.

A MEETING of the Midland Branch was held in Newcastle-on-Tyne on Saturday, October 28.

During the afternoon demonstrations were given by Mr. G. H. Lodge, L.R.C.P., L.R.C.S., L.D.S., and Mr. Robert Marston, in the Dental Hospital.

(1) Prolonged administration of nitrous oxide gas for major dental operations (*a*) with and (*b*) without a facepiece. The supply of the nitrous oxide

gas being from terminals hooking round the angles of the mouth, and being independent of the face-piece, the supply can be maintained when the latter is removed. Mr. J. T. Jameson, L.D.S., extracted, and the demonstrations were very successfully carried out.

(2) There was also a demonstration with the new gas "de-oxygenated air." The apparatus for this is at present a little complicated, but created much interest amongst the numerous company present. Besides the members of the branch several of the leading anæsthetists residing in the town had been invited.

Members afterwards adjourned to the Station Hotel, where Mr. G. G. Campion (President) occupied the chair.

The first business of the meeting was the receiving of casual communications.

Mr. **HEADRIDGE** (Secretary) read a casual communication from Mr. Keith Common (Stirling), on "The Prolongation of Nitrous Oxide Anæsthesia by means of a Tube passing through the Mouth Gag." [1]

Mr. **BRUNTON** showed a matrix, a matrix buckle, and a pair of pliers for contouring the matrix.

The **PRESIDENT** said the little buckle for securing the matrix band seemed to be a most useful thing, and would certainly prevent any likelihood of slipping.

Mr. **RANKEN** (Sunderland) made two or three exhibits. The first was a model of the lower teeth of a young lady of 16, showing a very wide separation between bicuspids; another was a case of supernumerary teeth in the front, and a third was a case of very pronounced cusps on the cingulum ridge behind the upper incisors, an instance of what he called harking back to the time when the species had forty-four teeth.

Mr. R. **CARR** exhibited a similar case of separation between the bicuspids.

The **PRESIDENT**, referring to the first exhibit, said that if models were taken in such cases, not of the lower jaw only, but of both jaws, a great deal of light would be thrown on the way in which the movement took place. He would suggest that when those cases cropped up a model should be taken of the upper jaw as well.

Mr. **JAMESON** (Newcastle) exhibited a skull which had been unearthed in the Front Street at Tynemouth; it was found eighteen feet below the surface, and was supposed to have been the skull of one of Cromwell's soldiers killed there. It showed most marked attrition, and also had thirty-two teeth.

The **PRESIDENT** said the specimen was a most interesting one. If so many interesting specimens were produced there the Association must come to Newcastle again. The skull showed a most extraordinary amount of attrition, and also a very great degree of absorption round the roots of both upper and lower molars.

Mr. **DAVID HEADRIDGE** submitted a case bearing on the cause of eruption of teeth. Models of the mouth of a healthy young man aged 20 showed an "open bite" on the right side from the canine to the posterior edge of the second molar at its greatest depth being over a quarter of an inch, neither the upper nor lower teeth reaching their normal level, yet without any assignable cause.

The discussion was then taken on the demonstrations held at the hospital earlier in the afternoon.

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[1] Published on p. 651 as an original communication.

Mr. LODGE said he thought he had proved by the demonstrations that the terminals were an advantage in prolonging the anæsthesia of nitrous oxide gas. The other demonstration was, perhaps, not quite so successful. De-oxygenated air was partly in its experimental stage. He was sure they would shortly have an anæsthetic which would be safer even than nitrous oxide gas. Of course, all anæsthetics were dangerous, but it was for dentists to endeavour to find out that which was the least dangerous. He intended at a future meeting to read a paper on that matter, and would then give a few statistics which would carry the discussion a little further.

Mr. GADDES asked what were the advantages of de-oxygenated air over nitrous oxide. Did Mr. Lodge consider that the first case of de-oxygenated air administration they had seen that day was one of perfect anæsthesia?

Mr. GRAYSTON asked if de-oxygenated air could be administered in the ordinary way with the ordinary apparatus, exactly as nitrous oxide would be used. He would also like to know if the accidental admission of air was detrimental.

Mr. DENT asked whether, in cases of extended operations, where a great number of stumps had to be taken out, the mouth being filled with the apparatus, there would not be accidents caused by stumps or clots of blood getting into the throat. He also wanted to know how many assistants were generally employed in the operation. Was there not, too, real danger from the long-continued administration of the gas, either from its extreme coldness or the time the patient was kept under it, with the blood flowing into the throat.

Mr. ALF. COCKER said he had had considerable experience with Coxon's tube and had been very highly satisfied with it, having had excellent results. Judging, however, from the demonstration given by Mr. Lodge, he must say he was somewhat converted to the use of the two terminals. There was one objection to the tube which the terminals overcame. There was an arrangement at the exit whereby the gas was not thrown towards the back of the mouth but was thrown across the mouth, as he understood it, in a sort of web by means of two slits which ran across the tubes, so that there was no possible chance of any of the blood from the bleeding sockets being blown towards the larynx. He could quite see that the tube required much more care and watchfulness than was needed in the use of the terminals. Those were advantages, he thought, which the terminals possessed over the tube. He had no difficulty in clearing the mouth when using the tube even if there were thirty-two stumps, however bad they might be. If they had sponges and made free use of them, there was no reason why they should not undertake a big operation. The question of the coldness of the gas was a most serious matter to him. He had seen one or two serious cases, one being a case of inflammation undoubtedly due to the coldness of the gas. Before using gas so extensively for a considerable time, he thought it would be wise in all cases to warm it before administration.

Mr. GADDES remembered Mr. Lawson Tait saying at a meeting of one of the branches at Birmingham some fifteen years ago that his most disastrous results he attributed to the condition of the lungs following on the prolonged administration of ether—that was to say, patients died from pneumonia or lung congestion which Mr. Tait attributed rather to the prolonged anæsthesia under ether and the consequent coldness which its evaporation produced.

Mr. COCKER said it would be noticed at that day's demonstration that the two fifty-gallon bottles, readily became frozen. He administered from one-hundred-gallon bottles, and occasionally he found they were very badly frozen, and he was unable to continue the administration for the length of time he required. He would advise anyone to get five-hundred-gallon bottles, and make quite sure that the openings were larger than those usually made.

The **President** said they were indebted to the gentlemen who had brought forward that matter of the coldness of the gas. He thought that was really a fatal objection to the demonstration as they had seen it that afternoon. The apparatus, he thought, only made the operation extremely cumbersome and troublesome, and required the presence of more assistants than they perhaps liked to have about them, but there was the fatal objection of the coldness. It did not seem to him, however, that that was an objection which applied to the continuous administration of the gas, but only to the method of administration. They knew the coldness was simply due to the expansion of the gas and its taking on a larger bulk. It seemed to him that might be absolutely overcome by using the gas from gasometers, and not from the bottle at all. The gas would be warmed to the temperature of the room, and that very serious objection would be altogether overcome. The days of gasometers seemed to have gone out. It seemed to him that the much greater cold they had seen produced under that demonstration than under any other operation was a very serious matter indeed. He would like to ask Mr. Lodge whether he had seen any bad results from that.

Mr. **Renshaw** (Rochdale) said that on the occasion of a demonstration at Manchester twelve or eighteen months ago he introduced the subject of direct administration, not from the gas bottle, but from the gas holder. What, he asked, would be the effect of the coldness getting on to the lungs of a person afflicted with pneumonia? The operator at the time pooh-poohed his suggestion, and did not think any harm would accrue. Mr. Jackson, at Manchester, said there was no doubt compressed gas given direct from the bottle was injurious to persons with weak lungs, and agreed that it was a better plan to give gas from the gas-holder.

Mr. **Jameson** (Newcastle) thought the use of the terminals rather favoured the operator. They kept the cheek away.

Mr. **Lodge** replied on the discussion. With regard to the cold produced, of course the pressure at that afternoon's demonstration was very great. In an ordinary way he did not get so much cold as was produced that afternoon. A little cold in the mouth was rather an advantage than otherwise, he took it, in operating, provided it was not excessive. It arrested a good deal of the hæmorrhage. The terminal, it had to be remembered, consisted of about 17½ inches of tubing, and on both sides it was in contact with the face and inside of the cheek, which naturally would raise it to the proper temperature of the system. This, of course, increased the temperature of the gas a little. There was no reason why the gas should not be given through the terminals from a gasometer, nor was there any reason why it should not be passed through hot water. If so, some of the objections would be overcome. He did not apprehend that gas would be given in cases of pneumonia. He did not think it would ever be given to anybody seriously suffering from lung trouble. If it were he should think it would probably not have a beneficial effect. The only gas likely to be given in pneumonia was pure oxygen when a dental operation was not required. With regard to Mr. Gaddes' question as to the deoxygenated air being successful and the anæsthesia perfect, he should say it was not so perfect that afternoon as he had seen it. The patient that afternoon was a shallow breather, and did not take deep inspirations. The anæsthesia could be got quite as deep as under nitrous oxide but it was a little evanescent, and the administration required keeping up. At the same time, he thought there was not the same danger as under nitrous oxide, of producing asphyxia.

The PRESIDENT: Have you ever seen cyanosis with de-oxygenated air?

Mr. LODGE said he had not, although he had no doubt it would be produced in a prolonged administration, provided both air and oxygen were entirely excluded. For a prolonged administration of N_2O and a major dental operation it required two skilled persons, one to administer the gas and the other to perform the operation, and he strongly condemned their being undertaken single-handed. The apparatus for the de-ogygenated air that afternoon did not work quite so well as he had had it working at home, and consequently he could not advocate what had not been done successfully. He had not been so satisfied with it there as in his own surgery. He had had no experience of clots of blood or teeth getting into the throat. Of course, those accidents might happen in either a minor or major operation, no matter what anæsthetic was used, and the operator would naturally try to prevent them. With regard to the time, he had seen anæsthesia prolonged under de-oxygenated air, when given in combination with 20 per cent. of normal air, for six minutes, and with nitrous oxide for fifteen minutes. There were no serious after-effects.

The PRESIDENT said Mr. Lodge had seen no cyanosis with the de-oxygenated air. He would like to ask if he had always administered it with the terminals or had ever done so with the ordinary gas apparatus?

Mr. LODGE said he had only administered de-oxygenated air with the terminals, and advised there should be always some admixture of air; his best results had been where from 10 to 20 per cent. of normal air had been added.

The PRESIDENT did not quite see that Mr. Lodge had made out his case that de-oxygented air was very much safer than gas. The whole subject was very interesting, and would bear a great deal of further investigation.

Mr. COCKER read a paper on "A Higher Dental Qualification."[1]

The PRESIDENT said he had to bring before the meeting a matter from the Council. Some of them might not know that, during the last few years, action had been taken and the Association had been working in the direction of getting some legislative changes so as to deal with those men who were practising dentistry under the name of companies. The British Dental Association and those interested had been working on these lines. A clause had been introduced to amend the Companies' Act. It was a very brief clause, and struck directly at those illegal practices. It ran as follows:—"It shall be unlawful for a company under the Companies' Act, 1862 to 1898, to carry on the profession or business of a physician, surgeon, dentist or midwife, and if any company countenances this enactment it shall be liable to £5 for each day during which the contravention happens." If they could get a clause like that, it would give them a legal status in dealing with the present companies which at present could set the Dental Act at defiance. This bill was coming up for consideration in the next session of Parliament. If they were anxious as a body to support legislation on those lines, they must see to it that they put their shoulders to the wheel and help, by urging their Parliamentary representatives to support it.

The PRESIDENT proposed a vote of thanks to Mr. Moon for making such excellent arrangements for the gathering. The visitors had found in Newcastle an Odontological Society and a hospital which were a credit to the district.

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[1] Published with discussion on p. 646.

The motion having been carried, the meeting ended.

The following signed the attendance book at the adjourned meeting. G. Brewis (Gateshead); G. Brunton (Leeds); G. G. Campion (Manchester); R. A. Carr (Newcastle); Alf. Cocker (Sowerby Bridge); T. Davison (Darlington); J. W. Dent (Stockton-on-Tees); J. A. French (Seaham Harbour); T. Gaddes (Harrogate); W. Glaisby (York); W. C. Grayston (Scarborough); T. R. Haggarty (Newcastle); David Headridge (Manchester); J. T. Jameson (Newcastle); W. L. Jefferson (Bradford); T. E. King (Harrogate); E. J. Ladmore (Bradford); C. Lightfoot (Newcastle); G. H. Lodge (Rotherham); J. W. Lumley (Kirby Moorside); W. D. Moon (Newcastle); R. Marston (Leicester); R. W. Markham (South Shields); J. G. McCalpin (Middlesborough); A. G. G. Plumley (Newcastle); T. Dilks Page (South Shields); I. Renshaw (Rochdale); J. G. Ranken (Sunderland); A. B. Sibson (Stockton-on-Tees); W. Somerville-Woodiwis (West Hartlepool); C. F. Sutcliffe (South Shields); H. W. Tibbits (Darlington); J. W. H. Wilson (Barnsley); T. R. D. Walkinshaw (Newcastle); R. L. Young (Leeds); Dr. Pratt (Newcastle).

The next meeting will be held in Sheffield in February, and members are invited to send to the secretary, at as early a date as convenient, the title of any communication or demonstration they intend to introduce, that a full day's programme may be arranged for and published in the January Journal.

Southern Counties Branch.

THIS Branch held their usual autumn meeting at the Royal Pier Hotel. Ryde, Isle of Wight, on Saturday, October 28, when the members were hospitably entertained to luncheon by Messrs. H. O. Colyer, W. H. Daish, and J. Ellis, the Island members.

Amongst those present were:—Messrs. John Wood (President); G. O. Richards (President-elect); J. C. Foran (Vice-President); W. Barton (Eastbourne); J. H. Reinhardt, H. J. Kluht (London); A. King (Guildford); A. L. Goadby (Reading); Morgan Hughes (Croydon); J. Ellis (Sandown); H. O. Colyer, W. H. Daish, and J. R. Freeman (Ryde); M. Henry (Folkestone); Francis Rogers (Winchester); W. Harrison, J. F. Rymer, and F. V. Richardson (Brighton); W. H. Pilcher (Godalming); Charles Foran, H. A. E. Canning (Portsmouth), and others.

Mr. J. F. RYMER read a paper on "Crowns and their Varieties,"[1] which was ably discussed by the President and Messrs. H. J. Kluht, J. R. Freeman, J. H. Reinhardt, G. O. Richards, A. King, W. H. Pilcher, Morgan Hughes, and others.

Mr. J. R. FREEMAN gave a demonstration on "The Use and Construction of Cheoplastic Lowers," first by showing a case mounted ready for flasking, and explaining mode of waxing up; next a case flasked, demonstrating how the gates in the plaster should be cut to facilitate the pouring of the metal and the egress of air, and finally a case finished, with vulcanite attached to the front.

Mr. Freeman stated that he found this form of lower very useful in cases of close bite, where the lower was necessarily very shallow and consequently very light when made entirely of vulcanite. He also advocated the weighting of lower dentures to avoid as much as possible the use of clasps, and promised to give a practical demonstration on the method of construction at an early meeting of the Branch.

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[1] Published on p. 640.

Casual communications were given by Messrs. H. O. Colyer, G. O. Richards, W. H. Daish, and C. Foran.

The members afterwards dined together. At the luncheon £1 15s. 6d. was collected for the Benevolent Fund.

The next meeting will be for "Demonstrations," and will be held at Brighton on Saturday, January 27. Gentlemen willing to give demonstrations are requested to communicate with the Hon. Sec.

Central Counties Branch.

A MEETING of the above Branch was held on Thursday, November 2, at the Medical Institute, Birmingham, the President, Mr. A. E. DONAGAN, in the chair.

The council was attended by Messrs. A. E. Donagan, Dencer Whittles, R. J. Surman, W. H. Breward Neale, Malcolm Knott, F. W. Richards, J. Mountford and A. T. Hilder. Letters of apology for non-attendance were received from Messrs. A. E. Vickery and J. L. Robertson.

The following gentlemen were nominated for membership of the British Dental Association and of the Central Counties Branch:—Mr. Philip Henry Harvey, L.D.S.Glas., 322, Hagley Road, Birmingham: Mr. George Valentine Smallwood, L.D.S.Eng., 54, Newhall Street, Birmingham; Mr. Robert Griffin, L.D.S.Eng., 70*a*, Newhall Street, Birmingham. For the Central Counties Branch only:—Mr. Arthur L. Bostock, L.D.S.Eng., 29, Church Street, Kidderminster.

At the general meeting there were present:—Messrs. A. E. Donagan, W. H. Breward Neale, F. W. Richards, Dencer Whittles, Malcolm Knott, K. Daman, A. W. Steynor, G. F. Cale-Matthews, Donald Amphlett, J. Ernest Parrott, A. H. Parrott, Dr. Hall Edwards, J. Mountford, G. V. Smallwood, P. H. Harvey and A. T. Hilder (Birmingham); R. J. Surman (Worcester); J. T. Craig (Leicester); T. St. Johnstone (Sutton Coldfield); F. W. Hands (Cheltenham); A. L. Bostock (Kidderminster); T. C. Colledge (Stroud); W. P. Pearson (Burton); H. R. F. Brooks (Banbury).

After the minutes of the previous meeting had been read and signed, the President announced that a sub-committee, consisting of the President, Secretary and Mr. Knott, had been appointed by the council "to organise a meeting for practical work to take place in February or March."

Dr. HALL EDWARDS, of Birmingham, gave a most interesting description and demonstration of the Röntgen rays, giving their application up to date and in connection with dentistry. Cases of its practical utility were cited by members present, and in the discussion of the subject the following gentlemen assisted—Messrs. J. T. Craig, R. J. Surman, H. R. F. Brooks, Breward Neale, F. W. Richards, J. Mountford and A. T. Hilder.

A very hearty vote of thanks to Dr. Hall Edwards for the subject matter, and to Mr. Donagan for presiding, brought the meeting to a conclusion.

The next meeting of the winter will be held on Thursday, December 7, at six o'clock, at the same place, when Mr. H. R. Brooks, L.D.S., will give a paper on

"Inostosis," illustrated by limelight views, and Mr. Howard, L.D.S., will show a case of cancrum oris successfully treated. Any casual communications wil also be welcomed.

A. T. HILDER, *Hon. Sec.*

83, *Edmund Street*, *Birmingham.*

Reports of Societies and other Meetings.

Odontological Society of Great Britain.

THE first meeting of the Session, 1899-1900, was held on Monday, November 6, Mr. STORER BENNETT, President, in the chair.

The minutes of the preceding meeting having been read and confirmed,

The PRESIDENT delivered his address. He pointed out that it was now forty-three years since the Society, then a small company numbering hardly more than fifty members, had assembled in George Street, Hanover Square, to hear the inaugural address of its first President, Mr. Samuel Cartwright. At the present time the Society boasted 400 members. "It may be truly said of the practitioners of dental surgery," continued the President, "that we are dexterous with our fingers, highly skilful in the use of instruments, and resourceful and ingenious in adapting means to certain ends; that our aims are chiefly centred in combating the ravages of dental caries wherever we may meet with them, in alleviating the suffering they produce, and in restoring to a state of usefulness, and as artistically as we may, those lost and mutilated portions of the dental armature which already has put on 'this muddy vesture of decay.'" Their efforts were directed to the advancement of the art of dental surgery, and he feared that few were lavish of time or thought on the advancement of its science. The most pressing question in the present day was to determine why some teeth seemed an easy prey to caries, while others, apparently alike in character and surroundings, rarely showed a sign of it. If dentists wished to stand on an equality with other professions of a scientific character, they must remember they would be measured, not by their art, but by their scientific work alone. He therefore appealed to the younger generation, still at home in the chemical theatre and bacteriological laboratory, whose time was as yet not fully occupied with the calls of private practice, to convert their enforced idleness into a learned leisure by undertaking some form of original research. He could think of none likely to yield a richer harvest than that of the immunity of teeth from caries. Nor need they be anxious lest the discovery of the means of preventing tooth decay would mean that their occupation was gone. The aim of the physician of the present day was to prevent disease as well as cure it, yet it could hardly be said there were fewer doctors now than formerly. The mystery of immunity was sure to be unravelled by some one, and it was his earnest hope that the discovery would be made in England. The closing years of the nineteenth century had shown what dental caries was and how produced; was it too much to hope that the earlier years of the twentieth century — even the opening year—might reveal the means of its prevention.

Mr. UNDERWOOD, in proposing a vote of thanks for the address, said that the President had added to their knowledge of dental science in every direction. Scarcely a meeting had taken place at which he had not thrown light upon some thorny problem.

The vote was carried by acclamation.

Mr. F. J. BENNETT presented some notes of a case of loss of entire palate which had been successfully treated by Mr. J. Henry Whatford. The plate which had been used, which was exceedingly ingenious, had been constructed by an assistant in Mr. Whatford's workroom.

The PRESIDENT said that Mr. Whatford was to be congratulated in having an assistant who was evidently an artist, who delighted in his work. He had seen the patient and could vouch for the extreme indistinctness with which he had spoken with the old plate, and for the improved articulation afterwards.

Mr. DOLAMORE asked how the patient managed to chew his food. It was difficult to see what the patient had to bite on, or what made the teeth come together when he wanted to bite.

Mr. HUTCHINSON, while a student at University College, had had a case almost exactly like the one of which they had been told, only the patient had unfortunately lost his nose as well, and was a most ghastly object. He had made a somewhat similar appliance, but it was not hollow. The man had all his lower teeth in position, and there was great difficulty in making the upper plate keep up. A skeleton frame had to be made to carry the swivels for the springs. The patient used to take out his teeth when he wanted to eat, and used his forefinger to grind his food over the lower teeth.

Mr. F. J. BENNETT, in reply, said that Mr. Whatford's case had been more successful with regard to mastication, because they heard from the notes that the patient had been two years using the plate and had been given a fresh lease of life. Therefore he thought they were bound to conclude that he was able to masticate the food with the new plate. Food could very well be eaten by the action of the muscles contracting on the upper and side portions of the upper plate as against the lower plate.

Mr. HUTCHINSON wished to add that *his* patient had no upper lip either.

Mr. H. G. READ thought that was probably the explanation of why the patient could not eat.

Dr. FREDERIC HEWITT showed an apparatus for administering nitrous oxide and oxygen, which had been sent to him from America by the S. S. White Co. It was very ingeniously made: the valves of the face-piece were made of mica, and were without springs, perfectly loose, and yet they were absolutely efficient. With a little adaptation he thought they might be made applicable to our own face piece. There was one bag for the nitrous oxide and another for the oxygen, and the regulating arrangement was at the side. He had also brought down an apparatus of his own for administering nitrous oxide and oxygen. In his apparatus the oxygen was admitted through ten minute holes, and by a rotating indicator one or more of those holes could be uncovered. That was not sufficient to meet all cases, as for instance, very small children and alcoholic subjects. It was therefore advisable to have in the apparatus some arrangement by which one could in one inspiration throw in a known quantity of oxygen. In order to accomplish that he had had a supplementary stop-cock made, which when turned round made the first of the ten holes ten times its ordinary size. When the stop was turned round a little further, the hole was made twenty times its ordinary size. In that way he could open any number of holes from one to thirty instead of from one to ten at a moment's notice.

The **PRESIDENT** said that everyone knew the extreme care which Dr. Hewitt displayed in the details of his administration of nitrous oxide and oxygen, and if Dr. Hewitt considered it an improvement they might accept it as such. They were much indebted to him for showing the apparatus.

Mr. J. F. **COLYER** then read a paper entitled "Some Notes on the Treatment of Superior Protrusion." His method of treatment was excellently illustrated by slides of various cases, showing the gradual improvement which had taken place. The various points of the paper will be sufficiently gathered from the discussion which followed.

Mr. **BALDWIN** wished to know if Mr. Colyer invariably treated the too great height of the lower incisors by extracting an incisor. It seemed to him that in very many cases of superior protrusion, when there was too great height of the lower incisors, there was absolutely no crowding whatever of the lower teeth. For instance, instead of the upper canine biting half behind the lower canine, as it should do if the relation of the two rows of teeth was correct, very often the upper canine was quite in advance of the lower canine. The protrusion was entirely in the upper jaw, the lower teeth being perfectly free from crowding, but very much posterior to their proper position. In such a case it would be wrong to extract anything at all from the lower row of teeth. It seemed to him that the teeth wanted banking up, and the lower incisors kept as far forward as possible, and not encouraged to go back or to shrink by extracting the lower teeth.

Mr. **BETTS** believed it was because they were so far back that they impinged, and therefore the plate of thick vulcanite for the incisors to bite upon was useful to drive them down and to some extent amend the condition.

Mr. **JOSEPH TURNER** said that if it were admitted that cases of superior protrusion were chiefly found in mouth-breathers, they would find a partial explanation of the existence of crowding, inasmuch as the contraction of the cheek acted on both jaws for a lengthy period. That would explain the crowding of the canines deep down, also explaining to some extent the want of growth or moulding of the upper jaw. He did not see why the condition should not be relieved by the extraction of the two first bicuspids in the lower jaw, providing against trouble at some future time from the eruption of the third molars.

Mr. **FAIRBANK** agreed with Mr. Colyer's treatment for superior protrusion. He had on several occasions extracted the first bicuspid when the temporary canine was in place, but he had never considered it in such a thorough and scientific manner as Mr. Colyer had done. Then not only did Mr. Colyer's treatment allow the front teeth to take their proper place, but it also prevented the extraction of teeth further back. He thought that was of great importance. When, for instance, a six-year-old molar was taken out it tended to bring the jaws closer together than when a first bicuspid was taken out. He had also extracted on a good many occasions one of the four lower incisors in order to give room to the others, but he had never noticed what Mr. Colyer had so clearly shown, that it not only removed the pressure, but allowed the incisors to occupy a lower place and prevented the piling up which was so frequently noticed.

On the motion of Mr. **LLOYD WILLIAMS** the discussion was adjourned.

Reviews and Notices of Books.

THE SIMPLE DENTAL LEDGER AND THE SIMPLE DENTAL DAY BOOK. Messrs. Bale, Sons, and Danielsson, Ltd., 83-89, Great Titchfield Street, Oxford Street, W.

The "Simple Dental Ledger" appears to us to be a distinct advance on anything we have yet seen of its kind, and we confidently recommend its use to all dental practitioners who have hitherto been worried by the difficulties and complications of bookkeeping. The method adopted in the book before us represents simplicity and convenience combined with economy of space in their neatest form, and whoever is responsible for its compilation may be credited with having bestowed much thought and ingenuity on the arrangement of its pages. A chart of the mouth is affixed to the inside of the cover, so that he who runs may read and learn at a glance the method to be followed in making the entries. The three current notations are given, thereby affording facility to all, whether they employ the "Ordinary," the "Hospital," or the "International." Each page is headed by, on the left, a chart similar to that inside the cover, and on the right spaces for the name and address and age of the patient, with history of the case. Below are columns for date, operations, notes, time occupied in the visit, and a double cash column wherein may be entered the fee earned and the amount paid. The column set apart for operations is subdivided into smaller columns headed by symbols indicating the nature of the operation performed, each line being thus capable of containing a complete record of each visit. The book consists of 502 pages of 33 lines, is legibly indexed, and really would seem to fulfil every requirement of the most careful, busy practitioner. "The Simple Dental Day Book" is also excellent of its kind, and as each page contains a double cash column it obviates the necessity of a cash book. These two books, together with the usual appointment book, are sufficient to contain all records of a practice. They are strongly bound and are quoted at the moderate price of a guinea and a-half the set, or 18s. 6d. and 13s. 6d. respectively.

CALENDAR OF THE BIRKBECK LITERARY AND SCIENTIFIC INSTITUTION, Breams Buildings, Chancery Lane, E.C. Founded 1823. Session 1899-1900. Syllabus of Classes, Schemes of Work, Particulars of Examinations, Scholarships and Prizes, List of Associates, Results of Examinations and Annual Report.

This calendar is most complete in every detail, and forms a handy book of reference, enabling the student to acquire all possible information as to the classes, examinations, scholarships, &c., connected with the Birkbeck Institution, besides furnishing him with a history of the Institution and an account of its scheme of government.

Annotations.

It is satisfactory to learn that the Watford Board of Guardians have obtained the concurrence of the Local Government Board in their decision to appoint a dental officer to attend to the teeth of the children in the workhouse, and of those boarded out within the union. The salary is to be £20 per annum. The *Councillor and Guardian* expresses a hope that the sum named may be sufficient to attract candidates for the post! Surely our lay contemporaries must be aware of the large amount of gratuitous work done by dentists in connection with our public institutions.

It is with much regret that we learn of the death, at Philadelphia, of Dr. W. J. A. Bonwill, whose name is probably almost as well known in this country as in the United States. Readers of the *Cosmos* will have seen the announcement in the October issue of that journal, in which it is stated that Dr. Bonwill was taken ill while on the way to Niagara Falls to attend a meeting, and was consequently removed to Clifton Springs (New York) Sanatorium, and subsequently to the Presbyterian Hospital, Philadelphia, where for a time he seemed to be improving. He was afterwards transferred to St. Joseph's Hospital, where he underwent a surgical operation, which, however, failed to afford relief, and he gradually sank until death took place from uræmic poisoning on Sunday, September 24.

Mr. H. C. Carter, whose letter on the subject of "Dentists and the Telephone" appeared in our October issue, now writes to inform us of the good results of his efforts on behalf of the dental profession. Since the attention of the National Telephone Company has been called to their apparent injustice in not allowing the same advantages to dentists as to medical men, the Board has had the matter under consideration, with the result that Mr. Carter has received a letter from the district manager, stating that the company will be pleased to make the same concessions to the dental as they have made to the medical profession, that is to say, that dentists may now enjoy the use of the telephone at the rate of £10 per annum. This will, no doubt, be welcome news to many of our readers, and Mr. Carter has our best thanks and congratulations.

Miscellanea.

Benevolent Fund.

The following new contributions have been received during October:

New Subscriptions.

Mrs. W. Hern, 7, Stratford Place, W.	£1	1	0
D. E. Caush, 63, Grand Parade, Brighton (per J. Dennant)	0	10	6
W. H. Pilcher, The Grove, Godalming (per J. W. Dent)	0	10	6
A. Layton, 21, Gold Street, Kettering	1	1	0
J. A. Poock, Erpingham House, Tombland, Norwich (per H. F. White)	1	1	0
A. R. Henry, 38, Wellington Square, Hastings (per J. Dennant)	1	1	0
Harold Turner, Ely Lodge, Eastbourne (per J. Dennant)	1	1	0
Miss Kathleen Reinhardt, 81, Brixton Hill, S.W. (per J. Dennant)	0	5	0
T. H. Elliott, 45, Stamford Road, Brighton (per J. Dennant)	0	10	6

Donations.

J. A. Poock, Erpingham House, Tombland, Norwich ...	1	1	0
W. B. Tolputt, Lorne House, 317, Glossop Road, Sheffield (per C. Stokes)	0	10	6
F. J. Bennett, 17, George Street, W.	5	5	0
W. Armston Vice, 5, Belvoir Street, Leicester	1	1	0
G. O. Whittaker, 26, King Street, Manchester	1	1	0
Dr. W. H. Williamson, 15, Union Terrace, Aberdeen ...	1	1	0
"Anon." (per Walter Campbell, 27, South Tay Street, Dundee)	2	10	0

The Dental Hospital of London.

The annual dinner of the staff and past and present students of the above institution, and their friends, is announced to take place on Saturday, December 2, in the "Whitehall Salon" of the Hôtel Métropole at 6.30 p.m., Mr. Alfred Coleman, F.R.C.S., L.D.S.Eng., in the chair.

In order that efficient arrangements may be made it is earnestly requested that gentlemen who intend being present will send in their names at their earliest convenience, stating also if it be their intention to bring friends. The price of tickets is 10s. 6d. each, exclusive of wine. Communications to be addressed to Mr. Morton Smale, Dean.

The Bowman MacLeod Memorial Fund.

We have received the following list of donations already subscribed to the above fund. The list is to be kept open till December 31, and intending donors are desired to communicate as soon as possible with either of the Hon. Treasurers, Mr. Malcolm MacGregor, 20, Queen Street, Edinburgh, or Mr. John S. Amoore, 10, Charlotte Square, Edinburgh, by whom they will be duly acknowledged. A further list will be published in our next issue.

	£	s.	d.
Mr. Oswald Fergus	5	0	0
,, C. Rees Price	5	5	0
,, Geo. W. Watson	5	5	0
,, Malcolm MacGregor ...	5	5	0
,, J. Stewart Durward ...	5	5	0
,, John S. Amoore	5	5	0
,, Fred. Page	5	5	0
,, H. Bycroft Ezard	5	5	0
,, J. Leslie Fraser	5	5	0
,, Walter Campbell	5	5	0
,, A. K. Finlayson	5	5	0
,, John Girdwood	5	5	0
,, Ernest J. Wallis	3	3	0
Sir Edwin Saunders	2	2	0
Mr. Joseph W. Thomson ...	2	2	0
,, J. Morris Stewart	2	2	0
,, W. E. Harding	2	2	0
,, W. S. Woodburn	2	2	0
,, John Ackery	2	2	0
,, Thos. Arnold Rogers ...	2	2	0
Dr. Graham Campbell... ...	2	2	0
Mr. J. C. Clarkson	2	2	0
,, John Cromar	2	2	0
,, D. Baillie Wilson	2	2	0
,, Jas. Smith Turner	2	2	0
,, Sewell Simmons	2	2	0
,, A. J. Woodhouse	2	2	0
,, Charles S. Tomes	2	2	0
,, James Mackintosh	2	2	0
Messrs. Platt & Common ...	2	2	0
Mr. Henry Rogers	2	0	0
,, R. Markham	1	1	0
,, James MacGregor	1	1	0
,, S. Lee Rymer	1	1	0
,, H. C. Quinby	1	1	0
,, David Hepburn (London)	1	1	0
Dr. A. W. W. Baker	1	1	0
Mr. J. D. Hamilton Jamieson...	1	1	0
,, C. Robbins...	1	1	0
,, A. Alex. Matthews ...	1	1	0
,, Thomas Wilson	1	1	0

	£	s.	d.
Mr. George Brunton	1	1	0
,, Hume Purdie	1	1	0
,, R. H. Woodhouse... ...	1	1	0
,, F. Canton	1	1	0
,, Thomas Gaddes	1	1	0
,, G. Reginald Brittan ...	1	1	0
,, James Johnstone	1	1	0
,, Arthur Underwood ...	1	1	0
,, G. Whittaker	1	1	0
,, J. Main Nicol	1	1	0
,, Leonard Matheson... ...	1	1	0
,, William Hern	1	1	0
,, G. J. Goldie	1	1	0
,, James Gardner	1	1	0
,, Peter Cumming	1	1	0
,, G. M. Stuart	1	1	0
Dr. G. A. Bogue	1	1	0
Mr. T. H. D. Walkinshaw ...	1	1	0
,, Frank W. Farmer... ...	1	1	0
Dr. J. Jamieson...	1	1	0
Mr. W. H. Woodruff	1	1	0
,, J. M. McCash	1	1	0
,, W. Taylor	1	1	0
,, C. West	1	1	0
,, W. A. Hunt	1	1	0
Dr. Proudfoot	1	1	0
Mr. H. B. Longhurst	1	1	0
,, J. Fenn Cole	1	1	0
,, John Dunlop	0	10	0
,, F. W. Richards	0	10	6
,, W. H. Waite	0	10	6
,, H. P. Friend	0	10	6
,, Arthur Cocker	0	10	6
,, R. Edwards	0	10	6
,, S. Oliver Richards... ...	0	10	6
,, W. D. Moon	0	10	6
,, Ralph Carr...	0	10	6
,, A. Naismith..	0	10	6
	£150	15	6

MALCOLM MACGREGOR } *Hon. Treasurers.*
JOHN S. AMOORE }

November 6, 1899.

Victoria Dental Hospital, Manchester—Distribution of Prizes.

The winter session of the Victoria Dental Hospital was inaugurated by a meeting held at the Owens College on the evening of October 12, Mr. Reuben Spencer presiding.

The Dean (Mr. William Simms) reported that the institution, which was founded in 1884, had since its existence afforded dental aid to over 160,000 patients. The hospital was now able to take pupils for instruction in mechanical dentistry, and owing to the perfection of the scheme of education in this branch during the present year, it was now possible to supply really necessitous patients with artificial teeth, on the recommendation of a subscriber, on the payment of a small fee towards the cost. Over seventy students had obtained the dental qualification, although the establishment of the dental school was of so recent a date. The present number of students was forty-three, the entry this year amounting to twenty-four. The space at their disposal was in consequence of this increase in their numbers quite inadequate. Mr. William Hinners and Mr. S. L. Helm had, by their generous gifts of £1,000 and £500 respectively to the building fund, given the Managing Committee reason to hope that it might be possible, before long, to provide a hospital worthy of the city and worthy of the dental profession.

The retirement of Mr. G. G. Campion from the position of dean was a cause for regret, but it was a satisfaction to know that he would remain a member of the staff.

The following prizes were awarded:—*Fletcher prizes:* Senior, P. M. Patterson; junior, B. J. Rodway. *Matheson operating prize:* C. W. Smith. *Ash prize:* B. J. Rodway. *Regulating prize:* B. J. Rodway. *Extracting prizes:* Senior, H. Johnson; junior, B. J. Rodway. *Prosthetic prize:* Thomas Whittaker. *Owens College prizes:* Dental anatomy, J. H. Meek; operative dentistry, J. T. Hughes and B. J. Rodway (divided). *Mechanical dentistry:* First prize, C. W. Smith; second, P. M. Patterson.

Dr. Leech, in his address before distributing the prizes, contrasted the training of the present day dentist with that of twenty years ago. He said that the changes which had taken place in dental education were in accord with the change of view with regard to education generally, which he believed was destined to completely alter the educational arrangements of the country. Whereas in former years education was looked upon as a luxury for the rich, now it was recognised as desirable in all departments of life. An interesting point in connection with the Victoria Dental Hospital was that the education of dental students was one of its important objects. This showed great enlightenment on the part of the originators and supporters of the hospital. It was a curious fact that many otherwise sensible men looked with aversion upon hospital teaching, and put every possible obstruction in its way. It ought to be understood that the teaching done at a hospital was of more advantage to humanity than any of its other work, inasmuch as its benefits extended over a wider area. He trusted that before long the Victoria Dental Hospital would receive sufficient pecuniary aid to enable the committee to add to the accommodation, and provide suitable buildings for dental hospital purposes. Dr. Leech spoke of the close connection which existed between the course of education at the Victoria Dental Hospital and the dental instruction at the Owens College, and of the intimate and friendly relations which, by the union of the college and the hospital, enabled the dental school to be formed. He referred to the question of University degrees, and thought that if a degree in dentistry were established it would probably be associated with the medical rather than the scientific degrees.

A vote of thanks was accorded Dr. Leech, and the evening terminated with a musical entertainment.

Birmingham Dental School—Mason University College.

The opening of the Dental Faculty in conjunction with the Medical Faculty on October 2 was inaugurated by the delivery of an address by Sir William Gairdner, K.C.B., LL.D., M.D., F.R.C.P., F.R.S., on "The Two Disciplines in Education."

The occasion was one of much interest to the dental profession in Birmingham and the neighbourhood, and was marked by the reopening of the College Dental Museum, which for some years has been housed in a badly-lighted and ill-ventilated room isolated from the other dental sections.

This museum, which has been formed by Mr. John Humphreys, L.D.S., F.L.S., almost entirely at his own expense, possesses a remarkably complete collection of sectionised skulls, special cases illustrating the dentition of mammals, fishes and reptiles, and fossil teeth of extinct animals.

A unique collection of photo-micrographs, prepared by Mr. Dencer Whittles, L.D.S., has also been added, making this museum the most complete of any departmental museum in the college.

The whole of the specimens have been relabelled, and models of abnormal human teeth and jaws of every variety have been systematically arranged and catalogued. The collection contains very valuable specimens of odontomata, including the remarkable "Sims" case, in which was found forty-four denticles. The history of this case is now to be found in most of the text-books on dental surgery.

In order to facilitate microscopical work, light has been particularly studied in the erection of the building and in the colouring of the walls. The general arrangements of the museum, and the means by which the specimens are displayed, are such that students cannot fail to acquire the necessary knowledge in an easy and comprehensive manner, and there is no doubt that much use will be made of the museum by the dental students of the college, and also by the local members of the dental profession generally.

Faculty of Physicians and Surgeons of Glasgow—Dental Examination.

At the October sittings of the Dental Board the following candidates passed the respective examinations:—*First examination:* John R. Habgood, Edgbaston; John Holmes, Paisley. *Final examination:* Robert Black, Glasgow; James Bowie, Glasgow; James Bunten, Glasgow; John Cormack, Elgin; William James Crooke, Liverpool; Philip Henry Harvey, Birmingham; Dale Graham Worts, Glasgow.

Royal College of Surgeons, Edinburgh.

During the November examinations, Philip Archibald Bradlaw (Liverpool), passed the First Professional Examination for the Licence in Dental Surgery; and the following candidates passed the Final Examination, and were admitted L.D.S. Edinburgh:—Percy Langton Bartholomew (Sheffield); Arthur Mitford Brown (Gateshead), and Percy Rhodes (Pontefract).

Entries of Dental Students at the Medical and Dental Schools.

The following are, as far as we are able to ascertain, the numbers of dental students who have entered this session at the various schools and hospitals:—

Edinburgh Dental Hospital and School, 10; Guy's Hospital Dental School, 52; Dental Hospital of London, 40; Victoria Dental Hospital, Manchester, 21; Mason College, Birmingham, 12; Bristol University College, 3; Charing Cross Hospital, 26; University of Durham, College of Medicine, 4; Owens College, Manchester, 24; Middlesex Hospital, 10; University College, Liverpool, 13; University College, Sheffield, 1; University College of S. Wales, Cardiff, 2; Westminster Hospital, 1.

An Unhappy Mistake.

A large section of the public are presumably unaware that the gas employed for anæsthetic purposes and that used for the purposes of warming and lighting are by no means one and the same. An unfortunate result of home treatment in conjunction with this not unnatural ignorance is exemplified in the case of a young man, who is said to have endeavoured to procure a self-administered anæsthesia by placing in his mouth a piece of india-rubber tubing, the other end of which he had connected with the gas-burner. The poor fellow, who had suffered from pains in the head, was discovered by his father dead in a chair, and a note was found, written by the deceased, explaining that he was "only unconscious," and that he was trying to alleviate his pain by breathing gas, and procuring unconsciousness in the same way that he had had it done at the dentist's.

Death through Swallowing a Denture.

A contemporary records an inquest, held on September 23, on the body of a woman, who succumbed to injuries caused by swallowing an artificial tooth attached to a plate. It appears that the accident occurred at Southampton while at supper, the wire of the plate being loose. The deceased went to a hospital and was examined, but with no result. On returning to London she went to St. George's Hospital, where she was detained ten days, the X-rays being used, without, however, leading to the discovery of the plate, and subsequently death ensued. The account of the *post-mortem* examination, as given by the lay press, is somewhat misleading, but we gather that the tooth was found in the vicinity of the right lung, having made its way through the walls of the œsophagus, death being due to hæmorrhage. Patches of congestion were found in the stomach, giving evidence of the recent presence of a foreign body, and the medical man was of opinion that the tooth had passed into the stomach and had been vomited back into the œsophagus. A verdict of "accidental death" was returned.

Varnishing Cavities.

A correspondent of *Items of Interest* (Geo. W. Soule, Boston, Mass.) suggests that a more lasting filling of amalgam may be got by first varnishing the cavity with a thin solution of rosin in ether.

He considers that the great penetrating powers ascribed to ether are likely to be of advantage in the canaliculi of the tooth structure; by using rosin and ether these become sealed. On the pressing in of the amalgam a very intimate relation is established between the tooth and the filling, which would not take place in the absence of the varnish. His method is as follows:—

The tooth being first isolated by means of the rubber dam, all decay should be removed. The cavity is then sterilised with the drug best suited to the occasion, and subsequently dried thoroughly with alcohol and hot air. A thin solution of rosin in ether is now applied as a varnish to the cavity. The varnish being carefully removed from the periphery of the cavity, amalgam is packed in in the usual way.

The writer does not claim originality for the idea, but says he has never heard of the method being in general use.

Cutting Porcelain Inlays.

In the course of a discussion on a paper entitled "Porcelain Inlays as made by Dr. Jenkins, of Dresden," reported in the *Transactions of the Academy of Stomatology* (Philadelphia), one of the speakers, Dr. Roberts, stated that a small disc of thin copper, used with water or oil, will cut as perfectly as a diamond disc, and even more quickly.

Bending Wire Clasps.

J. Craig Cameron, L.D.S., in speaking of the various kinds of clasps that may be used for retaining artificial dentures (*British Journal of Dental Science*, October, 1899) says:—"Let me warn you in bending up wire clasps, against the use of flat-nosed pliers. In bending wire round with flat-nosed pliers you cut into it, and by breaking the continuity of the metal, weaken it at the point where it should be strongest. The first bend the clasp takes round the tooth should be its strong point; therefore, in filing up, be careful not to dig your file into the wire at this point."

Books and Publications Received.

TRANSACTIONS OF THE ACADEMY OF STOMATOLOGY, January 25, 1898, to December 27, 1898. Reprinted from the *International Dental Journal*. *Philadelphia:* Printed by J. B. Lippincott Company, 1899.

CONTRIBUTION A L'ÉTUDE DES OBSESSIONS ET DES IMPULSES A L'HOMICIDE ET AU SUICIDE CHEZ LES DÉGÉNERÉS AU POINT DE VUE MÉDICO-LÉGAL. By Le Docteur Georges Carrier, ancien externe des Hopitaux de Lyon; ancien interne provisoire des Hopitaux de Lyon; interne des Asiles de la Seine. *Paris:* Aux Bureaux du Progrès Médical, 14, Rue des Carmes; Felix Alcan, Editeur, 108, Boulevard St. Germain.

CONTRIBUTION L'ÉTUDE DU PROGNOSTIE DE L'EPILEPSIE CHEZ LES ENFANTS. Par Le Docteur E. Le Duigou, ancien interne de l'hopital du Havre. *Paris:* Aux Bureaux du Progrès Médical, 14, Rue des Carmes; Felix Alcan, Editeur, 108, Boulevard St. Germain.

VIE PHYSIQUE DE NOTRE PLANÈTE, DEVANT LES LUMIERES DE LA SCIENCE CONTEMPORAINE. Par A. Klossovsky. Discours prononcé le 30 Août, 1898, dans la séance réunie du X. congrès des naturalistes et médicins russes tenu à Kiew. *Odessa:* Imprimerie de la Société des Editions Typographiques de la Russie méridionale, Rue de Pouchkine, No. 20, 1899.

NATURAL AND ARTIFICIAL METHODS OF VENTILATION. *London:* Robert Boyle & Son, Ltd., 64, Holborn Viaduct.

NOTE.—ANONYMOUS Letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 26, Wimpole Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

Subscriptions to the Benevolent Fund to the Treasurer, A. J. Woodhouse, Esq., 1, Hanover Square, W.

All contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

SPECIAL NOTICE.—All Communications intended for the Editor should be addressed to him at 26, Wimpole Street, W.

Journal of the
British Dental Association

No. 12. DECEMBER 15, 1899. VOL. XX.

Original Communications.

The Etiology of Dental Caries.

BY J. SIM WALLACE, M.D., B.SC., L.D.S.ENG.

[*Third Communication.*]

THAT the prevalence of caries among civilised people is greater than among savages is a well-established fact, and it is argued that civilisation is a predisposing cause of caries. This supposed cause is too indefinite for any practical purposes, and I shall endeavour to show that although caries is intimately connected with the advance of civilisation, the resulting caries is, as it were, an accident, and need not be a necessary consequence of civilisation.

In glancing over the history of the civilised from the time of their uncivilised forefathers, it is obvious that much of the advance has absolutely nothing to do with caries in teeth. I think it will be admitted, however, that if we direct our attention to the evolution of the means of obtaining food, and of the processes to which foods are subjected, the investigation may presumably be in a profitable direction.

In the early periods of man's existence there was little social cohesion, and each individual had to a great extent to concern himself with securing food, and, when he had the opportunity or inclination, with cooking it. It is known, however, that cookery was indulged in from very early times. Even before the introduction of suitable utensils which could be used for boiling over a fire, it was to a certain extent managed by the introduction of hot stones into the liquid foods, which were collected in whatever utensils were most convenient for holding them. Methods were in use for roasting meat, fish, roots, nuts, &c., which together with fruit, seem to have supplied the needs of remote savages.

When we compare such a state of affairs with the various methods of securing food at the present day, and the elaborate machinery (flour mills, rice mills, sausage mills, sugar refineries, meat juice factories, &c.) by which many of the foods are refined, not to speak of the processes to which foods are subjected in our bakehouses, biscuit factories and kitchens, we see that there is some difference in the food of the present day from that in past ages. It may be said, however, that, after all, the food stuffs have not essentially altered. We require proteids, carbohydrates, fats, water and mineral matter, much in the same proportion as our ancestors, and this is what we get. There is one change, however, which has gone on, and is at the present time going on, till it has reached a stage which is absolutely detrimental to the well-being of the teeth, stomach, alimentary tract and body generally. There is a gradual elimination of *all* the coarse, fibrous, inert and undissolved earthy matters which are present more or less in the food of savages. The teeth are no longer used and burnished by these natural tooth brushes and tooth powders, and the stomach and intestines no longer have their movement sufficiently stimulated by the natural excitation of the food stuffs. By many, the effects which should be secured by innutritious matter are secured by the daily use of aperients in order to keep the intestines in proper condition, and by as many the teeth are kept in fairly good condition by an annual visit to the dentist. That there may be authoritative support for much of the above, I shall quote from Sir Henry Thompson's work on "Food and Feeding." Remarking on whole wheat meal bread he says: " . . . no portion of the husk of the grain should be removed from the wheat when ground, whether coarsely or finely, into meal. That a partial removal is systematically advocated by some as an improvement, is one of the numerous illustrations of the modern and almost universal craze which just now exists among food purveyors of almost every description, for eliminating all the inert or innutritious matter from the food we eat. This extraordinary care to employ nothing in our diet but matter which has nutritive value, that is, can be absorbed into the system, is founded upon want of elementary knowledge of the first principles of digestion. . . ." And again, "It seems to me now to be almost overlooked that no proper action of the intestines can take place unless a very considerable quantity of inert matter is present in our daily food, existing as material which cannot be digested. . . . When there is a considerable proportion of this in the food the bowels can act daily and regularly, having a mass which they can transmit. When, on the other hand, the food is so 'nutritious' as to be almost entirely absorbed, there is very little solid matter to transmit, and the action of the bowels is therefore scanty, irregular and insufficient. This is, in fact, a very extensively recognisable cause of a great deal of the habitual constipation so prevalent among the middle classes at the present time."

That a craze for eliminating the inert matter should be so universal when it is detrimental to the well-being of the body may well cause surprise. Why should the craving for the nutritious only have sprung up? The answer is simple. The nutritive instinct is the most primitive, the most fundamental, and the most ineradicable with which we are endowed (Th. Ribot, "Psychology of the Emotions"). Throughout the whole course of evolution, at least up to the advent of a moderately high standard of civilisation, this desire for the nutritious and aversion to the innutritious has been a beneficent instinct to all who possessed it, for during all that time, however strong was the desire for that which was nutritious, there was always too much of that inert and coarse matter which is now so necessary. It is unfortunate that this instinctive preference for soft nutritious foods exists in so marked a degree at the present day, when it is detrimental to a certain extent, and I fear it must remain yet, for multitudes of generations to come, a serious hindrance to the prevention of caries. Whether reason and the knowledge of what is the correct thing, together with the possible influence of fashion, based on physiological principles, which may spring up, will counterbalance the evil, time alone will tell. I need not point out in how many ways this preference for the succulent and nutritious must have been advantageous to primitive man, who required to subsist to a large extent on roots, berries, grain and fruits, supplemented by what little fish or meat he could secure. It will suffice to note that he required to carry about with him a larger and heavier digestive tract than does civilised man, and much of the energy which we can now utilise in other ways was utilised by primitive man in extracting nutriment from coarse, fibrous, and more or less nutritious food stuffs.

With the advent of civilisation there have come the machinery and methods of preparation which strip even the inner husk from the grain, and then grind this already refined food stuff to an impalpable powder (flour, maize, rice, &c.), to be ready for further preparation by the modern art of cooking. Other means are adopted for extracting merely the juices of roots and plants (sugar). Numberless examples will present themselves to the reader which show how the carbohydrates especially are ridded of the fibrous matters with which in the natural state they are mixed. In the case of children's food this process of elimination is carried to a still greater extent, and many children are brought up on softened derivations of food stuffs administered in the form of paps.

This fact, together with the instinctive dislike of fats and preference for sugar, accounts almost wholly for the relatively greater frequency of caries among children. I need not pursue this subject further. It is tolerably clear that what was at one time performed by the teeth and stomach is now too largely done by machinery and cookery. The cause *par excellence* of the prevalence of caries at the present day is the elimination of the fibrous matter which accompanies the carbohydrates in their natural state, and their presentation in a form which readily lodges and undergoes acid fermentation in the mouth.

It is important to note, however, that although the food consumed at the present day is conducive to caries, it is not conducive to inherent or developmental deterioration of the structure of the teeth. The enamel is formed below the surface of the mucous membrane, and is complete in form and structure before it cuts the gum, and although the teeth are unused or only partially used, there is no reason to expect a deterioration of structure. Nor do I believe that the temperature of the food given to infants in artificial feeding has the slightest influence on the developing tooth germs any more than I believe that the hands are imperfectly formed because they are subjected to greater vicissitudes of temperature than the clothed part of the body.

If it could be shown that a deteriorated structure of the teeth had been advantageous to those races in which it might be assumed to have originated, then perhaps by the agencies of natural selection the structural degeneration of the teeth might have been brought about. But this assumption cannot be granted, and truly it would be most disheartening if we had to believe that the teeth of the present day were so much deteriorated, that the hope of regaining the perfection in structure of the teeth of savages was only to be again arrived at by a process of natural selection. We cannot believe in a degeneration of the teeth themselves unless we wish to believe in the inheritance and augmentation by inheritance of something which is detrimental, an idea which has not even the support of the theory of the preservation and augmentation of useful characteristics through adaptive modifications.

It has been suggested that mixed feeders are more liable to caries than peoples who subsist almost wholly on meat. No doubt this is true, and it is important to recognise this fact, but it is possible for people to be mixed feeders and even vegetarians, and yet be little prone to caries, *e.g.*, Polynesians, Fiji Islanders, East Indians (Mummery's Tables). It is impossible to make man a flesh eater except in certain latitudes. As far as my experiments on the lodgability of food stuffs in the mouth go, there are certain mixtures which do not tend to lodge in the crevices of the teeth as much as some unmixed food stuffs. Thus, for example, meat and potatoes, or meat and bread, are much less liable to lodge than are potatoes or bread separately. When fibrous food is chewed together with non-fibrous, the non-fibrous is swallowed first, and the fibrous follows after further chewing. This fact may be easily observed while eating meat and potatoes, the potato being swallowed a considerable time before the meat, which requires to be chewed longer. During the process of mastication the bolus is crushed again and again between the molars and bicuspids, and the part which has been partially softened is pressed between the dorsum of the tongue and the rugæ of the palate. The fluid and finely ground part, which is principally carbohydrate from the potato mixed with saliva and the other juices, is pressed backward to be swallowed, while the roughened surface of the dorsum of the tongue arrests the passage backwards of the fibrous part of the food by pressing it against the rugæ of the palate. The tongue then returns this fibrous part to the side of the mouth to be further disintegrated. If an unsavoury simile may be used, this process may be likened to the mopping up of the dirt and water from a floor which is being cleaned; the fibrous mop or cloth is rubbed on the floor, and the water and dirt which it gathers up are wrung out into the bucket, and the mop again applied to the floor, the dirt and water soaked up, and the process repeated. This is essentially Nature's method of cleaning the teeth, and is, I believe, more efficacious than a tooth brush, as it polishes the surface of the teeth and creates a healthy flow of saliva while removing the non-fibrous food-stuffs. This latter function is not performed by the tooth brush.

The same remarks are applicable to fibrous food stuffs which contain much starch and require to be chewed. From a physiological point of view also, the fibrous matter, which in the natural state is incorporated with starchy food, ought to be retained, as this necessitates a thorough mastication, and so allows the ptyalin of the saliva to act upon the starch, and supplies at the same time the requisite inert matter for the proper action of the bowels, as well as supplying the requisite cleansing matter for the teeth. Certain mixed foods, however, do lodge in the teeth when eaten together, *e.g.*, biscuit and cheese, both being non-fibrous.

With regard to food stuffs in which the coarse and fibrous parts are removed, the beneficial function which these fibrous parts perform in the cleansing of the teeth is lost. In eating a biscuit, for instance, a considerable part of it is crushed into the crevices of, and between, the teeth, and there is no natural method for its removal.

Another effect produced by the elimination of the coarse and fibrous parts of many food stuffs is to encourage the habit of swallowing the food without much mastication. This is especially the case with children who are brought up on soft foods, and there are, I believe, many people who are so accustomed to eating food that requires little chewing, that they often swallow food unchewed which otherwise would be subjected to a certain amount of mastication. Of course in such cases the teeth are not thoroughly cleaned, and caries is liable to be more frequent.

Now although civilisation has brought about the removal of Nature's tooth brush, it is, as it were, an avoidable accident caused by a "want of elementary knowledge of the first principles of digestion," and if we look into the more or less distant future we can easily perceive that civilisation will bring back, in some form or another, that which she is at present so careful to remove, and we may look forward to the time when the food of the civilised may be less conducive to caries than the food of the uncivilised is to-day. Moreover, there is good ground for believing that with more exact knowledge of the causes and prevention of caries, it may one day become as infrequent as many diseases at one time so prevalent and now so rare.

A Case of Open-bite.

READ AT A MEETING OF THE METROPOLITAN BRANCH, OCTOBER 25.

BY J. H. BADCOCK, L.R.C.P., M.R.C.S., L.D.S.ENG.

A SHORT time ago a young man of about 22 years of age presented himself at Guy's Hospital, complaining of inability to close his front teeth. He stated that until about three weeks previously he had always been able to close them perfectly, in fact, he was in the habit of biting his nails. On examination I found corresponding facets on his upper and lower incisors.

In the mandible there were present on the left, two molars badly decayed. On the right, one molar in a like condition, and a space from which one had been removed a few days previously, on which occasion he had suffered a good deal from hæmorrhage. All these teeth were tender and painful, and the patient complained of a great deal of neuralgia. Whether the wisdom teeth were unerupted, or whether the first molars had been lost in early life, I could not determine. The only point of contact between his upper and lower teeth was at the last molars. There was a space of from ⅛ to ¼ inch in the incisor region.

What was the cause of this rapidly acquired open-bite? It must, I think, have been due to one of four things. First, an alteration in the shape of the mandible itself. This is almost inconceivable, considering the short time in which the deformity had developed.

Secondly, some change in the temporo-mandibular articulation. This seems unlikely, as the movements of the joint were normal and there was no pain in it.

Thirdly, elongation of the upper teeth. Of this I could find no evidence.

Fourthly, elongation of the lower teeth.

This last is the only explanation which I can offer, though it is very unsatisfactory. It seems possible that, owing to the extreme tenderness of the lower molars, the patient avoided contact with them, and that as a consequence of this loss of occlusion they became extruded. The treatment adopted was to extract the last lower molar on each side. This allowed the jaws to come closer together, but they were still propped open to some extent by the remaining carious molar. It seemed possible to grind away sufficient of this tooth to allow of articulation in the bicuspid region, and to save it by filling. I am sorry to say that I was not able to go into this case by any means as fully as I could have wished. I saw the man for a short time only, he failed to keep his next appointment, and I lost sight of him. This must be my excuse for so imperfect and unscientific a report of the case. I shall be greatly indebted to any member for suggestions as to the cause of this interesting condition.

DISCUSSION.

The PRESIDENT said this was a very interesting case, and asked whether there were any adenoids present, and also whether there had ever been a fracture of the jaw which had never properly united. He noticed in the model the teeth were elongated and extensively decayed, and it might be an excessive elongation brought about by periostitis.

Mr. F. J. BENNETT: A possible explanation is, that, of the last molar teeth, which appear to be the ones antagonised, one is only partly erupted. A gradual eruption of that tooth, which is presumably a wisdom tooth, would tend to open the bite more and more. The age of the patient might give some plausibility to this explanation.

Mr. ASHLEY BARRETT: I should like to quote a case I had not long ago. The patient was an elderly man for whom some years since I made upper and lower frames. He had only two teeth standing, an upper second and a lower third molar on the left side. For some years things were all right and the frames articulated comfortably enough. But he came to me last year with a very open bite, complaining that he could not eat well and suffered pain and discomfort. I found that the lower wisdom tooth was articulating with the upper second molar. There was no periostitis. The upper second molar had become rather tender from the impact, and a little mobile. It seemed to me that the condition was brought about by some change in the temporo-mandibular articulation; perhaps a process of chronic inflammation, which had forced the condyle of the mandible a little forward, possibly a rheumatic inflammation. I could not trace any history of pain about the articulation. The man said he had a tendency in the direction of chronic rheumatism, his joints became tender and sensitive occasionally. At any rate, the articulation was altered. I extracted the upper second molar.

Mr. DOWSETT: I might suggest that this may be a case of true osteo-arthritis. It might easily have passed unnoticed. I think it is a more common affection than is generally thought. In my limited experience I have seen several cases, although not in a very advanced stage. There certainly was no apparent swelling in the joint, but one often sees cases of osteo-arthritis in other joints, especially in the shoulder joint. The age of the patient is not against osteo-arthritis. I have a case at present in a girl of 25. Mr. Badcock said, I think, there was mobility of the joints, but that is not against it. One sees cases, especially in the knee joints, of mobile osteo-arthritis, and that is just the kind of osteo-arthritis that is likely to become dislocated, and that may be the cause of the open-bite. The joint may not be wholly dislocated, but a partial dislocation would be quite sufficient to cause the open-bite.

Mr. LEONARD MATHESON: It occurs to me that a possible, if not a probable explanation of the conditions of things, is that the last molars present are the second molars, and that the third molars, unerupted, are pushing against the distal surfaces of the second molars and tilting them forward. I have not seen any case exactly of this kind, but I have seen one or two cases in which, just about the age of the patient mentioned by Mr. Badcock, the articulation has been distinctly shifted, the mandible being thrust forward and downwards. I have two patients, brothers, who at about the age of 20 had their lower third molars coming in this way, and as they pushed against the second molars, not an open-bite, but in one case a very distinct and pronounced underhung bite, manifested itself, and in the other case, which is at present under my supervision, the same thing, although not to the same marked extent, is going on. Only two or three days ago I removed the wisdom tooth on the one side. The wisdom teeth are coming through, and I had very great difficulty in removing the one in question, because it was evidently leaning forward hard against the distal surface of the second molar. I was unable to make out any actual absorption of the latter tooth. There is a distinct change in the articulation of the upper and the lower jaws. It seems to me that that may be a possible explanation of Mr. Badcock's case. Cases must be familiar to us all in which the second molars, the first molars, and sometimes even the bicuspids, present periostitis, distinctly caused by disarrangement of the articulation due to the pressure of the wisdom tooth. When that pressure is relieved the trouble entirely disappears, showing how very much displacement may arise in the front of the mouth, owing to the pressure of the wisdom tooth.

Mr. BADCOCK, in reply, said: I did not know whether the man was suffering from adenoids or not. There was nothing to lead me to think so. I only had a few minutes in which to see the case, and I was trusting to a future appointment to go into it more fully. As I did not get that future appointment, I do not know. It does not seem to me that if he had adenoids it would have made very much difference, because the whole point is, that the condition occurred so very rapidly, and one hardly sees how adenoids could have very much bearing on the case in so short a time. I have no reason to think he ever had a fracture. He certainly had none then. Moreover, this propping up of the bite was bilateral. It was not more on one side than the other. It was evidently not due to any cause which acted more on one side than the other. Mr. F. J. Bennett spoke about the eruption of the wisdom teeth, as did also Mr. Matheson. The former inclined to the idea that the last tooth in the jaw was probably a wisdom tooth. I do not know. It may have been, or the man may have lost his second molars early in life and the other teeth have closed up. The eruption of the wisdom teeth does seem certainly a plausible explanation, more especially as the second molars were very tender to the bite, and therefore the man would have kept his mouth open and so relieved the wisdom tooth from any pressure. I must say I saw no sign whatever of any third molar, supposing the last teeth not to be wisdom teeth. I did not examine the case with a great deal of thoroughness, but there was no visible sign of third molars. Mr. Ashley Barrett's case is interesting, but he did not tell us how long the condition took to arise. Moreover, the patient was in advancing age, which makes it somewhat different from mine. Mr. Dowsett thinks it might be osteo-arthritis, and I suppose it might, in fact there were some things about the case which made me feel it was probably due to a change in the position of the articulation, rather than arising from teeth. Really the effect is very much the same as one sees when the bite is disturbed by a dislocation, only not so great, of course. With osteo-arthritis I think it would be common to find some pain about the joint. I did not notice any. The man complained of pain, but he did not complain that any movement of his joint made it worse, or caused it. I have to thank the members very much for the ideas they have given me. If I ever see the man again and there is anything to throw light on the case, I will bring it before the notice of this Branch.

A Proposed New Bicuspid Crown.

THE SUBJECT OF A DEMONSTRATION GIVEN AT THE MEETING OF THE METROPOLITAN BRANCH, OCTOBER 25, 1899.

By CORNELIUS ROBBINS, L.D.S.Eng.

For many years, since my student days, the first upper bicuspid has always been, and still remains, a puzzle from an anatomical point of view. Why the first bicuspid should be where it is, why it should be so much larger, why it should invariably have two fangs, or, at any rate, a bifurcation, are matters we need not discuss now, except in so much as they bear on the practical every-day work of crowning. For many years past my favourite form of crown in the bicuspid region has been the good old Logan, and I know of no crown that gives such artistic, immediate and durable results, provided the bite will allow, and the crown is fitted under proper conditions—except a collar crown. A collar is not always practicable or convenient, especially in the first bicuspid region. The difficulty has always been with this bifurcated root, and there again I have been puzzled to know why our 'cute Transatlantic cousins have not given us a Logan crown, or something of the sort, with a forked pin. As you know, in splitting an ordinary bicuspid Logan crown pin to make it adaptable for a first bicuspid, one weakens it and increases one's difficulties. Again, another difficulty has been in getting a selection of crowns for first bicuspids wide enough to cover the entire root. I began some time ago to make experiments, and took haphazard, out of my stock of teeth removed for regulation purposes, half-a-dozen and ground them down, in order to see the natural formation of this bifurcation, with a view to getting a forked pin that would be very easily adapted; these sections I now pass round (*see Plate.*) We all know that useful pin of Newland Pedley's, and the idea occurred to me, that if it could be combined with something like the Logan porcelain crown, we should have an ideal result. I applied to Ash & Sons, who carried out these suggestions very courteously, and did all they could to make a few by way of experiment, which are now passed round. When Mr. Leon Williams was speaking about the manufacture of crowns at the Ipswich Meeting, somebody made a statement to the effect that the Companies were not showing proper enterprise in the matter. I then spoke of the efforts Messrs. Ash were making in this direction. Later on, when these samples were sent me, which you now see, and I desired a few alterations, the makers wrote to the effect that the crowns would be very expensive, and considering the necessarily limited sale they would have, it would not be worth their while to make them. The point I wish to make is this: if you conclude that this is not a one-man fad, if you think there is anything in the idea, then the weight of your opinions might be helpful to me in approaching the makers again, and I ask for a free discussion on this point.

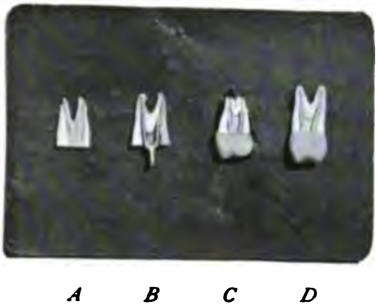
The PRESIDENT: Though it is not our province to criticise the depôts, yet if you think well of Mr. Robbins' idea you could individually approach them.

Mr. ROBBINS: I thought, if I was backed up by the views of a good number of practical men, I could approach the manufacturers in my individual capacity, but not as from this meeting.

DISCUSSION.

Mr. BADCOCK: I think Mr. Robbins has expressed the need we have all felt for a double-pin crown. I have made use of Newland Pedley's pins in platinum, fused into the hollow crown supplied by the Dental Manufacturing Company, or any hollow crown which has a hole in the top through which the pin can be put. More than a year ago I demonstrated a similar crown before this Branch, using, instead of a Newland Pedley pin, a staple of thin platinum wire. It is not very satisfactory, for the reason that the joint made by the low fusing body is not so strong as it would be if the platinum were baked into the tooth originally. Where the bite is at all close one does find that occasionally they break up, which is a great nuisance. If we could get a crown made like the ordinary Logan crown, except that it should have two pins such as Mr. Robbins has shown, I think it would meet a universal want. I think it should be a very close copy of the Logan crown in the matter of the hollow underneath.

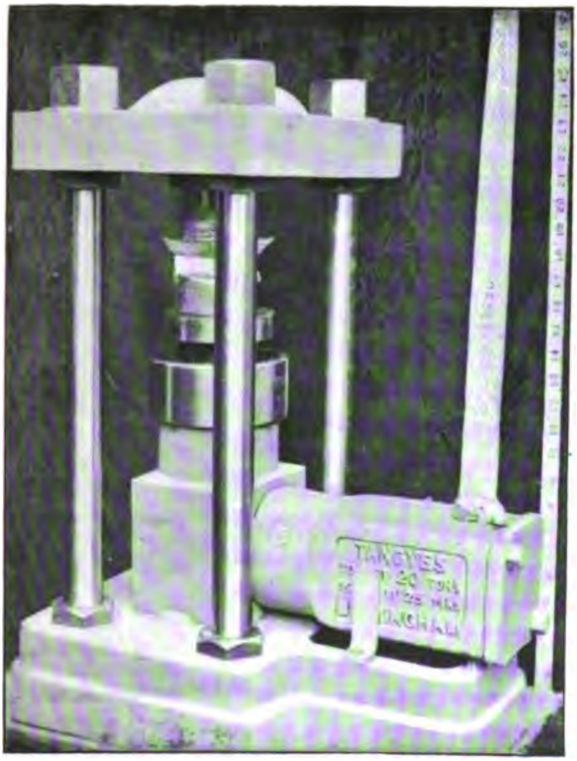
Mr. RUSHTON: I gave a demonstration at our last meeting of the crown of Leon Williams, who uses a split platinum V-shaped pin which is adaptable to upper and lower molars and bicuspids. I believe it is made by the Dental Manufacturing Company, and there is no difficulty in making such a pin, as far as I know. The crown was not baked with the pin, but was fixed on with either soft amalgam or osteo and the crown filled in with amalgam.



Four Rough Sections of Average First Upper Bicuspid Teeth, the Canals of which have not been Shaped.

(*See page* 689.)

(*A*) Showing bifurcation. (*B*) With forked pin, simply pressed into position. (*C*) Forked pin soldered to shallow Logan. (*D*) Forked pin and crown, made by Ash & Sons, and shown at the meeting.



Hydraulic Swager. (*See page* 691.)

Mr **Robbins**: I quite agree with Mr. Badcock as to the need of preserving the hollow around the pin. With reference to the pins and crowns of Mr. Leon Williams, I believe they are separate, and that you have to fit the pin first and then screw down the crown and fill in with amalgam. What I felt was wanted was a crown with a forked pin well secured in its place ready for immediate use.

A Hydraulic Swager.

By H. O. COLYER.

At the meeting of the Southern Counties Branch at Ryde on October 28, Mr. H. O. Colyer showed a hydraulic press for swaging up gold, or any other dental plates. The size of the press is two feet high by eighteen inches wide, and is capable of exerting a pressure varying from 0 to 20 tons. It is extremely easy to work, a few strokes of the lever being sufficient to exert enough power to force up thick gold plates, and the pressure is relieved by simply opening the valve. (*See Plate*).

Abstracts and Translations.

Reflexes from Lower Molars.

READ BEFORE THE NATIONAL DENTAL ASSOCIATION, AUGUST 1, 1899.

By JAMES TRUMAN, D.D.S., Philadelphia, Pa.

The causes of reflex disturbances have been sufficiently studied as a collateral branch of dental pathology, and it may seem a useless expenditure of the time of this organisation to attempt to add anything to the literature of the subject.

When the student of dental lesions comes to investigate the various books that are supposed to treat upon the reflexes of the teeth, he finds himself narrowed down to a small compass. He may critically examine all the works on dental pathology and oral surgery issued in the English language in recent years, to be surprised with the fact that where this subject received extended notice it has been mainly confined to infantile dentition, or it has been regarded as of secondary importance; and by some it is held to be one unworthy of pathological consideration.

The eruption of the permanent molars, apart from their histological interest, has secured but slight attention. It is true that the consideration of the intimate connection between the lesions occurring in teeth and the neuroses of the fifth nerve have of recent years been more thoroughly studied, but it has been more from the histological side; hence formations in the pulp, as these enter into daily practice, have received a full degree of attention from dental writers. The exceptional conditions are, however, passed by as of minor importance, or they have been entirely overlooked.

It is somewhat strange that the lesions of dentition have been treated by the majority of medical writers with slight consideration. The opposition of the medical to the generally accepted position of the dental profession, that the reflex disturbances of dentition are of vital importance, can be understood, for medicine until very recently has entirely underrated, if it has not entirely ignored, the oral cavity as a source of disease. This should not, perhaps, be regarded as remarkable, since the origin of disease in general has only been studied scientifically during the past twenty-five years, and is even now in its infancy. Medicine has been based upon symptomatology ; the effect, and not the cause, receiving much attention. It is therefore not a special source of wonder that the neuralgias, the tissue disturbers, the new foci of inflammation having their origin in the teeth, have received only a moderate degree of thought. While this is true of medicine in general, the specialist, the stomatologist, must share the responsibility of neglect.

The views that this paper proposes to consider are, in the main, written to enforce the idea that more attention should be given to the eruption of the molars than has been accorded them. The same laws of growth are manifested here as in the first dentition, and are equally responsible for serious disturbance along the course of nerve connections. Consideration will alone be given to the lower molars, for the question of growth does not apply with equal force to the upper set. It is, however, recognised that nerve irritation proceeds from these as it does from all the teeth disturbed from their normal relations.

The process of growth, whether in vegetable or animal tissues, is one of the most interesting in nature. John Tomes ("Dental Physiology and Surgery," 1848), in writing of this force says, "It would be difficult to estimate the actual amount of mechanical force developed by a growing tooth, but we may form some estimate by observing the force generated by a growing vegetable." If this force of growth be applied to the teeth, and it must be so applied, it can be well understood why in dentition reflex disturbance occurs. The whole question of treatment might be condensed into the word *room* With space sufficient for the development of teeth, all dentition would simply be a physiological and not a pathological process. It is therefore a question of space or room for development.

Growth proceeds from the first layer of enamel and dentine to the last of cementum, and in proportion as the enlargement proceeds must the teeth be given space for their formation ; and to accomplish this the gumward advance must be regular and with no opposing obstacles. In deciduous dentition these are confined to the gum-tissue, and these teeth are, equally with the permanent, a source of reflex disturbance.

The student of these phenomena has, therefore, a comparatively simple problem to solve. His duty is first to study the anatomy of the jaw and the process of growth in the jaw primarily, and to follow this by that of the teeth. He cannot omit in this consideration the position of development and the resulting changes that take place in its progress.

The beginning of development of the first permanent molar takes place about the tenth week of fœtal life, and from this period until the sixth year subsequent to birth it is gradually formed into the largest molar of the series. The broad occlusal surface of this tooth would seem to indicate that at this period of eruption it would be a special subject for pathological disturbance, but, as is well known, it is less frequently a source of reflex disturbance than any other of the developing permanent teeth in the inferior maxilla. If the jaw has been examined it will be found that this exemption is clearly explainable by the width of the jaw, measuring from the overlying gum-tissue to the inferior dental canal. The only obstruction to receive serious consideration is the tense overlying gum. This, while resistant, gradually yields to pressure, resorption taking place ; and, while it may retard eruption, it cannot, as a general rule, cause pressure upon the exposed pulp, or upon the inferior dental nerve. Hence there is a marked and almost uniform freedom from neuroses in this tooth, and it may be passed as an unimportant factor in pathological disturbance.

The second, or, as as it is commonly misnamed, the twelfth-year molar, has an entirely different place in development, and in consequence more fully exemplifies the importance of room for growth than any of the series, not even excepting the third molar, which is usually regarded as the prime factor in neuralgic lesions. In an extended examination of the literature of the subject, nowhere have I found this tooth noticed as a cause of reflex conditions. It is therefore worthy of study in its several relations—origin, development and eruption.

The growth of the jaw posteriorly carries the germs of these teeth well up in the rami, and as development proceeds, both in jaw and teeth, there is a gradual descent towards the angle of the jaw. The period of passing this point, through development of the latter, to assume the direct vertical position is the critical period. At this time the crowns are fully formed externally, and the roots have developed to half their normal length. If the growth of the jaw is in harmonious relation to the development of the teeth this period may be passed without notice, but this is not always the case. The growth of the roots may have progressed more rapidly than that of the jaw, and in passing the angle they may, and frequently do, impinge upon the inferior dental nerve ; or the exposed pulps may possibly be forced by the exceedingly tense gum against the bone envelope, in either case resulting in serious reflex suffering to the individual. The passage of this critical point by these teeth occurs about the ninth year.

The characteristic phenomena at this time are marked cerebral disturbance, resulting in convulsions, epilepsy, chorea, insanity, hysteria, otalgia, ocular diseases, and a long list of more or less aggravated lesions. In the beforementioned work of Tomes the author gives this as his opinion on reflex manifestations : "Before serious and painful results can arise there must be a concurrence of many circumstances. The patient must be of a strumous constitution or predisposed to inflammatory action, or the nervous system must be peculiarly susceptible to excitement. In the latter case epileptic fits may supervene. . . . That epilepsy does arise in some cases from this cause is proved by its appearing when the teeth are passing toward the surface and disappearing when passage is given to the teeth."

Dewees ("Physical and Medical Treatment of Children") makes this admission :—"And though the teeth cut (lanced) upon may yet be remote from the surface, still the operation may be of the greatest possible advantage by dividing the membrane . . . and the disturbance of the system is quieted from the moment the gum is divided." That the phenomena have been attributed to other causes is not surprising, in view of the fact that comparatively slight attention has been given to dentition as a whole, and the permanent teeth in particular.

That this statement is not based on mere conjecture, attention is called to the anatomical relations of the second molar with the jaw. A very cursory examination will bring conviction as to the truth of the conclusions to which I have arrived. My attention was originally called to this tooth as a prominent cause of reflexes at this age by several cases coming under care, which led to a more critical examination to discover, if possible, the cause and the remedy.

It is a well-understood fact by the more advanced dental observers that the nervous disturbances at this age, about nine years, have generally their origin in the teeth, and so certain are these as to the cause that the intelligent practitioner never fails to examine for obstructed dentition when called to diagnose a case. Dr. C. N. Peirce mentions a case, a child of a distinguished physician, and afflicted with chorea. The cause was diagnosed as a retained deciduous molar. The father was not able to comprehend that this retention could cause the nervous symptoms in the child. The extraction, however, demonstrated the diagnosis to be correct, as all reflex phenomena ceased.

In the case of the second molar, as well as others similarly situated, the relief must come by affording room for growth.

It is apparent that this is a difficult procedure with this tooth. It is deeply imbedded in the surrounding tissues, and it would seem impossible to afford any immediate relief. The first case which presented and claimed serious consideration was a member of my own family. At the ninth year this child was, without apparent cause, affected with violent convulsions that assumed an epileptic character. The seizures were prolonged, but days frequently intervened between them. The study given the case developed the hypothesis that the second molar was the pronounced factor in the cerebral disturbance. To verify this theory the child was carefully watched, and upon indications of an approaching nervous storm the lance was deeply inserted over the position of this molar. The result was entirely confirmatory of the diagnosis, and by care in watching symptoms and a repetition of the lancing whenever necessary, the child passed the critical period without further reflex phenomena. Since that time other cases have been under my care, and the same simple method of treatment has been followed with equally good results. During the present spring a child of nine years was brought to me suffering intensely with pain in both ears. Examination of the teeth failed to show any cause for this in exposed pulps or other lesions. These having been excluded from the possibility of causing the suffering, it was decided that the origin of the pain was reflex and must be from pressure upon the pulp of the partially developed second molars, or impingement of both upon the inferior dental nerve. The lance was at once applied to both, right and left, with immediate relief, and without any subsequent recurrence of pain now, several months since the operation was performed.

There is, therefore, no question in my own mind that dentists are called upon to watch carefully the development of the second molar in childhood, and advise the only remedy—free lancing.

The books are full of the sage advice that lancing should not be performed until the tooth manifests itself by forcing the gum above it into a rounded prominence. Lancing is indicated at all stages of development, whether upon the deciduous or permanent teeth, and should be resorted to as frequently as the symptoms indicate reflex phenomena. Dr. Dewees (quoted previously) recognised this, and he is the only medical writer with whom I am familiar who has comprehended this important point.

The third molar is so frequently the cause of reflexes that it would seem almost a useless expenditure of time to reiterate a well-known fact, and yet an examination of all the books on dental pathology and oral surgery reveals a great deficiency in the treatment of this subject. While this is true, I must refrain from its extended consideration here. Suffice it to say that these teeth, like the second molars, find their place of origin in the rami of the inferior maxilla, and have difficulty in assuming the direct vertical position. The two principal positions assumed by this tooth causing general nervous irritation, are the oblique and the horizontal. The former is not a frequent cause of reflexes, and, while it may produce these by impingement upon the inferior dental nerve, it more often effects this by producing unobserved decay at the cervical border of the second molar, and eventually pressing upon the pulp. The difficulty of diagnosing this must be evident, for as decay proceeds the tooth advances, filling completely the cavity and causing the lesion to be overlooked until neuralgic pains indicate some cause requiring the attention of the dental surgeon.

The most serious of all the malpositions of this tooth is the horizontal. The tooth in passing down from the ramus strikes the posterior root of the second molar, and there must stop. Deeply imbedded in the jaw, with the roots closely impinging on the inferior dental nerve, there is but one possibility, that of pressure upon that nerve, and that continually and more forcibly as growth proceeds. The reflex lesions are, as you are well aware, of the most serious character. The important matter to consider here is the diagnosis.

It is quite evident that a tooth thus situated produces its disturbing effect through lack of room, and that this room cannot be secured as long as all the teeth on that side are in place. If, then, the entire series, from the second molar to the cuspid, are in position at the age of eighteen to twenty-four, with lancinating and intermittent pains extending throughout the fifth pair, and with no visible signs of a developing tooth, it is evident that the third molar is abnormally developed in the position named. An explorer passed down posterior to the second molar will settle this fact. If, however, the second be absent, or it is in place and the first molar absent, it remains reasonable that the third molar is not the cause of the neuralgia. The force of growth, as before stated, is quite sufficient to change the second molar from its normal position, and thus give room for the development of the third molar. If, however, both first and second molars are in place, the inference may be drawn that the third molar will not have sufficient force to move two such powerfully implanted teeth far enough to afford relief.

The importance of this malposition cannot be overestimated. Forget mentions a number of serious cases, and almost every practitioner of dentistry has seen cases of obscure reflex pain which may not have been fully comprehended. There is no lesion more easily treated than this, and yet it is one the general surgeon fails almost universally to diagnose correctly. A case which I reported many years ago may be worth repeating here as an illustration of this statement. A patient was sent to me for examination for a most obstinate case of neuralgia which had resisted medical and surgical care for twenty years. The physician who sent her expressed himself as hopeless of having her relieved. The woman was a physical and almost a mental wreck. Feeble and emaciated, vision very defective, hearing with difficulty, she presented a most dejected and hopeless appearance. The examination of the mouth gave no indication of a third molar. All the other teeth were in place. An explorer was passed down posterior to the second molar, and the third was found occupying a horizontal position abutting against the roots of the second molar. The patient was informed that the only remedy was the extraction of the second molar. No opposition was made to this, and the tooth was at once removed. The effect was immediate, all pain ceasing, and in twenty-four hours the third molar had advanced and filled up the socket of the second molar. The patient in a month's time had recovered her hearing, the eyesight was greatly improved, and her physical and mental state had resumed normal conditions, pain having ceased entirely. She should have been saved this twenty years of torture.

At the time this case was under care the X-rays were an unknown factor in diagnosis. It is unnecessary to state here that this at present would have decided such a malposition with unerring certainty. This paper is not, however, written for the favourably situated in large centres of population, where this aid can readily be obtained, but for those in isolated practice who will need to decide cases by the older and perhaps obsolete methods.

The reflexes from dentition, exposed pulps, calcification in pulps, and from other causes, have received due attention from various writers, but those interested will find very full reports of cases given by Brubaker ("American System of Dentistry"), Arkövy, *Diagnostik der Zahnkrankheiten*, in an appendix prepared by Dr. George Creniceneau, and also in Wedl's "Pathology of the Teeth." It is therefore not deemed necessary to do more than allude to the fact that the recorded cases are so numerous that he who fails to recognise their importance is not fully grounded in the pathological possibilities contingent upon the abnormal changes in teeth. The subject is still obscured by imperfect observations, but sufficient is known to afford a basis for intelligent practice.

The reflex disturbances occasioned by the various recognised lesions have not been considered, as these are well understood and require no further elucidation. The main purpose of this paper has been to direct thought upon this subject, and more especially to two facts: first, that relief should not be delayed until the teeth manifest themselves at the gum-border, but in all cases of disturbed dentition, whether it be with deciduous or permanent teeth, the lance should be freely used, and that at the first symptoms of reflex disturbance; and, secondly, to call attention to the wholly neglected second molar as a cause of many of the serious reflexes about the ninth year.—*Dental Cosmos.*

Open Face Crown *v.* Contour Filling or Richmond Crown for Incisors.

READ BEFORE THE NEBRASKA STATE DENTAL SOCIETY.

By H. T. KING, D.D.S., FREMONT, NEB.

To illustrate my subject, we will imagine a central incisor with the mesio-occlusal angle gone and the disto-occlusal angle so undermined that no good operator would think of filling the tooth without removing it. White decay, the kind formerly described as occurring in soft teeth, has penetrated in all directions, and we may or may not have pulp complications. The enamel of the labial face of this tooth, when not already broken away, seems perfect, but is without a good support of healthy dentine.

The expert operator, who must also be an enthusiast, will take the tooth, and by liberal cutting get fairly good enamel walls, will cut a groove through the occlusa surface, shorten the lingual plate of enamel, and by thus connecting the two cavities, make a large contour filling that will be secure, as fillings go. This is an operation that is very tedious and trying, both to patient and operator, and at its conclusion you have, for the cutting edges, a soft gold, or at least a platinised gold, either of which, if brought to a thin incisal end will soon show signs of batter and wear. This kind of an operation is not to be condemned, but, for suitable teeth, highly recommended. There is a point, however, to the most expert gold builder, and reached all too soon by the average operator, when the filling of such a tooth will not be thought advisable, and it will be cut off and the root crowned. It is just at this borderland between reconstruction and destruction that the method that I shall advocate comes in.

All frail enamel is first trimmed away, but leaving much more of the labial plate than would be admissible for a foil filling. With discs all the enamel is removed from the proximal portion of the cervix on both sides, giving a flat, highly polished surface. Remove a portion, at least, of the enamel from the lingual aspect. Shorten the tooth a very little, bevelling it from both sides. Cut out the carious tissue, and if this leaves the cavities so deep or irregular that an impression cannot be taken, fill the deep parts with gutta-percha. The work can all be nicely done in the mouth, but I find that time is saved and the patient relieved by taking a plaster impression and making a fusible metal cast. A perfect reproduction of the tooth in metal can be materially assisted by slipping into the proximal space on either side a piece of cardboard just thick enough to fit, letting it press the gum back a little from the interproximal space.

If I wish a pin or dowel to extend into the pulp canal or deep portion of the cavity for anchorage, a piece of round wood toothpick is put in place, and comes away with the cardboard in the impression. When the impression is filled with Melotte's metal, I have a more or less perfect model, to which my gold is approximatelv fitted.

I take a generous piece of 24 c. gold, 32 to 36 gauge, and this I press, burnish, and trim over all the lingual and proximating surfaces of the tooth, the gold on the proximal sides being cut off just even with the cutting edge, that covering the lingual side extending so as to fold over and fit to the shortened occlusal surface.

My way is to first fit to one proximal surface, forcing the gold into the more depressed portion, with a piece of erasing rubber under the instrument. Slip it from the model and flow enough 22 c. solder to stiffen it. I replace it on the model, drive a piece of soft wood between the adjoining tooth and the gold that I have melted on, thus holding it firmly in place while I burnish and fit it to the whole lingual surface; remove it and flow on gold. I replace and fasten it in place, and fit the gold to the other cavity and proximal surface. The gold being thin and pure, all this can be quickly done.

The solder is to be laid on in small pieces, a little at a time, and heat enough given to barely melt it, for until it is fitted to the tooth in the mouth, no solder is to be allowed to flow on to the part that is to be fitted over the end of the tooth and the edges of the labial plate of enamel. This is important, for upon the close adaptation of gold to tooth at the exposed point depends the good appearance of the finished work, and, in a great measure, its durability as well. I have an idea that the best way to add piece by piece of solder is by the use of the mouth blowpipe. Possibly that is because I enjoy the use of that instrument, and have become somewhat of an expert from having done all my crown and bridge work in that way. Others may get as good results from a mechanical blowpipe and bellows, but I have no use for them, except to melt a large batch of gold.

Our piece of work is now fitted to the model and made rigid enough to handle without fear of bending. We remove it from the model to the tooth in the mouth and burnish it to the enamel. It should then be removed very carefully, the inside painted with whiting or finely ground asbestos and invested; sufficient gold is then added to make the necessary contour.

If the work has been neatly done, cement will not show, and you have, to all appearance, a contour gold filling with less gold showing, however, than if built up, and with an occlusal surface made of hard gold, that may with safety be brought to as thin a cutting edge as desired.

I have said nothing of anchorage, and some may be asking the question, "Will it stay?" The tooth having gold on all sides except the labial, no ordinary force can dislodge it when applied in any direction, unless downwards or inwards—the two directions not necessary to particularly guard in the case of the upper jaw. As a rule, I depend upon the fitting of gold into the two proximal cavities and turning over the bevelled occlusal edge, or if not necessary to turn the end and have the gold showing, fit into the groove cut through the occlusal surface. This gives but slight anchorage, yet sufficient to prevent the crown from tipping in, unless it first comes down a little.

The method I present for the restoration to form and usefulness of badly decayed incisor teeth is not universal in its application, but in the last six years I have found many cases in which it seemed to me the best method, and it has given great satisfaction, both to the patient and myself. I have used it oftenest on frail lateral incisors of the upper jaw, but in a few cases have found it just the thing for lower incisors so badly decayed that I have doubted my ability to restore them with gold fillings, and did not consider them good subjects for porcelain crowns. I have also had some pleasing results from applying the principle to bicuspids, when I have found the buccal enamel and cusp in good condition, yet the tooth demanding a crown of some kind. You can give such a tooth the appearance of having a contour filling with but little more work than making a shell crown, and the finished work will be much less conspicuous. For a bicuspid, a good strong pin should extend from the gold on the occlusal surface well into pulp canal, as strong anchorage is demanded.

I submit this with the thought that the method may be new to some of you, and that if it will, as I claim, add ten years to the usefulness of some teeth, it is worthy of your consideration.—*Dental Review.*

Treatment of Painful Sockets after Extraction.

In a paper by H. C. Kahlo, M.D., D.D.S., Indianapolis, in the *Indiana Dental Journal,* the writer recommends the use of moist cotton dipped in orthoform for packing the sockets after the removal of periostitic teeth, stating that absolute cessation of pain will result from this treatment.

Editorial.

The New Dental Curriculum.

In the march of science and the spread of knowledge, time, as it is ordinarily reckoned, is of small account; it is not sufficient to look back a generation or two in order to arrive at a perception of the changes that have taken place—they may seem sudden, but are the growth of years. Opinion and experience slowly incline towards a reform, and then the man arises and converts opinion into fact. The same thing, in a lesser degree, may be true in the case of scientific education, and yet we dentists are able, by looking back less than half a century, to realise an extraordinary alteration in the condition of things affecting our profession; but changes and reforms, growth in fact, shows itself more strikingly during infancy, and our branch of surgery is scarcely out of the nursery yet as regards its organisation.

In the fifties the two systems of dental education were engaged in what may, not inaptly, be termed a "struggle for existence," and there appears to be a consensus of opinion that this struggle has resulted in a "survival of the fittest." On the one hand the object in view was an affiliation to the rest of that profession which deals with the health of mankind, and on the other a "splendid isolation."

That period, and the history of subsequent events, must always be an unfailing source of interest, reflection and study, to the dentist.

The curriculum that was founded in 1858 by the Royal College of Surgeons of England, after so much careful and lengthy consideration and expenditure by the Council of that body, helped and guided as it was by Sir John Tomes and others, was so admirable that it has been the model upon which all the other colleges in Great Britain have founded their systems of education and examination. The founders of the present system had to frame the scheme of dental education more or less on the lines of the medical education of that period, hence a curriculum that manifestly was a five years' one was, by a process of overlapping the two parts of it, reduced to a period of four years, in order that it might be brought into line with the length of study required for a diploma in surgery. Moreover, the choice of subjects to be included in the curriculum and examination had to be regulated by the existing education for the M.R.C.S., a diploma which at that time gave its holder a right to be placed on the Medical Register.

Since then, medical education has developed, its period of study has been prolonged to five years, the Conjoint Board has been established, and examinations are held in all the subjects of the curriculum—chemistry affords an excellent example of this latter change. It had long been the opinion of those who educated and of those who examined, that it was undesirable to include in the curriculum subjects which were not to be afterwards subjected to the test of examination.

The evolution that has taken place in medical education has naturally extended to dental education, and during the new year the new dental curriculum will come into force; in future every subject included in the scheme of dental education will also form part of the test examination.

The dental student of the future, therefore, will have to pass an examination in chemistry similar to that passed by medical students, but it will be permissible, and perhaps advisable, to pass it during the term of apprenticeship. When the lectures on Dental Metallurgy and Dental Mechanics have been attended, and attention has been given to such practical work as can be accomplished in six months, the student will be able to present himself for examination in these subjects; the remainder of the curriculum, viz., Dental Anatomy and Dental Surgery, and the subjects taken up at a general hospital, may then be proceeded with, and at the expiration of four years, dating from the time of registration as a student, the diploma of L.D.S. may be obtained.

Among other wise changes in the curriculum we note that one course of lectures in each subject is to suffice, the old second course being replaced by a course of practical demonstrations in each subject, and we welcome an addditional course of five lectures on the Surgery of the Mouth.

The evolution of our curriculum has been preceded by an evolution in the examination for the dental diploma. At one time there was no practical examination, but about fifteen years ago tests in filling and the treatment of irregularities were established, and these lasted for about three hours and a half; later, a similar period was devoted to the subject of Mechanical Dentistry, a whole day being allotted to these portions of the examination.

As it now stands, it would, in the opinion of those best qualified to judge, be difficult to instance a qualifying examination in any profession which is more thorough or more satisfactory.

Some of our members desire to see what they call a higher diploma in dental surgery, but so far the expressed opinion of the Association in conclave, as was shown at its last Annual Meeting, has negatived the proposal.

It is, perhaps, hardly worth while to speculate upon future developments. The curriculum may possibly be extended to five years; it is the opinion of many good judges that a more thorough knowledge of anatomy and physiology should be required from the dental student, that the curriculum should include the subject of biology, and the first and second examinations for the Conjoint Board be made compulsory; but whatever the changes in store for us may be, it is safe to predict that they will be no less wise and no less judicious than those that are to be ushered in with the year 1900.

Some Uses for Carbolic Acid and Canada Balsam.

Henry H. Way, D.D.S., in the *Dominion Dental Journal*, speaks of the beneficial effect of a tracing of carbolic acid along the gum margin, in controlling the mucus while cement is setting. He also calls attention to the utility of Canada balsam for lining cavities, mentioning it as being serviceable in starting gold fillings. These are familiar methods, no doubt, to most of our readers, but to some who are not already acquainted with them they may prove useful.

Correspondence.

We do not hold ourselves responsible for the views expressed by our correspondents.

A New Form of Crown for Upper First Bicuspids.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—May I trespass upon your space in reference to a small matter brought before the Metropolitan Branch on October 25, in relation to a proposed new form of artificial crown for first upper bicuspids?

In the first place, I regret to find that I have been somewhat misunderstood, and that the impression left upon some present at that meeting is that I was "tilting" at the dental depôts. Nothing was further from my intention, and the only explanation that one can offer is, that owing to the length of the programme, together with the fact that my "Casual" came on when there remained but a few minutes of the regular time of the meeting, I may have expressed myself in a hurried and somewhat imperfect manner; hence the wrong impression.

What I was anxious to prove was, that many have long felt the need of a crown combining the well-known Logan with a forked pin, such as was designed by Newland Pedley.

Messrs. C. Ash and Sons have shown the greatest kindness and courtesy in trying to combine these two essentials, first specimens of which were shown to the meeting; but unless it is proved to the manufacturers that there is likely to be a demand that would justify their trouble and outlay, one cannot be surprised they conclude that "it would not be worth our while to make them, considering the *necessarily limited sale they would have*." (The italics are mine.)

There was little time for discussion, but after the meeting many expressed their opinion of the need in this direction. I should feel grateful if others would write to the Journal, or privately to me, in order that there may be some weight of opinion to take to the manufacturers, to prove that this is not the fad of one man, but that the need is such as to justify the makers in taking the matter up on business lines—the only way they can be expected to view such proposals. Thanking you for allowing me to make this explanation,

I am,
Yours faithfully,
C. ROBBINS.

6, *Stratford Place*, *W.*

Crowns and their Varieties.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—May I venture to offer a word or two of remonstrance against the ethical proposition brought forward by Mr. J. F. Rymer, M.R.C.S., L.D.S. Eng., D.D.S.Pa., at the Meeting of the Southern Counties Branch:

"I do not wish to lay down the laws for other countries where it may be the fashion to advertise professional names by inventing some little implement, any more than I should advise Chinamen to cut off their pigtails; but we in England know that advertising one's name in any form is not in accordance with the rules of the profession, therefore I think that it is absolutely wrong and unprofessional for any Englishman to allow his name to be advertised when he has discovered anything fresh. If, by your expressions of opinion, you come to the conclusion that professional inventors may allow their names to be attached to their inventions, then I see no objection why I should not also allow my name to appear in connection with one or two little specialities which I have got my chemist to prepare. I only mention this in passing; but I thought the subject of crowns, with varieties afforded such an excellent opportunity of saying in public what for a long time I have been waiting to do, in order to obtain the views of the dental profession. The above remarks apply not only to crowns but to numbers of different instruments, &c. If other professions advertise, it is no reason why we should follow their examples; and I trust that later on you will kindly discuss this matter."

This subject must be viewed from a wider range than Mr. Rymer is disposed to accord it, as there are many sides to the question. If Mr. Rymer's hard and fast rule be laid down for mere dentists, what is to be said about the professional advertisements of "Addison's Disease," "Bright's Disease," "Pott's Caries," "Cheyne Stokes' Respiration," "Hunter's Space," "Wood's Radical Operation for Hernia," "Teale's Flap Operations," "Colles' Fracture," "Dupuytren's Splint," "Liston's Long Splint," "Pott's Fracture," to say nothing about instruments invented by "Catlin," "Erichsen," "Tait," "Tomes," and other talented men who used their brains to invent methods and appliances in advance of what tradition had handed down to us.

Then look at the beneficent influence on modern medicine caused by the researches of Pasteur and Lister!

All these clever men lived in a professional atmosphere open to the most severe criticism on the part of their colleagues and the Colleges of which they were Members and Fellows. We do not read of their being censured by their professional contemporaries for being observant and inventive in advancing medicine and surgery!

Surely dentists who are inventive and observant have the same right to have their names associated with any progress they have been able to effect in the professional details that occupy their lives?

I am,
Yours faithfully,
W. BOOTH PEARSALL, F.R.C.S.

13, *Upper Merrion Street,*
Dublin.

Crowns and their Varieties.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—In this month's number of your valued Journal there is a report (beginning on p. 640) of a paper by Mr. J. F. Rymer, M.R.C.S., L.D.S.Eng., D.D.S.Pa., on "Crowns and their Varieties." It is not with reference to Mr. Rymer's opinions concerning these that I wish to offer any criticism, but there are at the commencement of the paper one or two remarks with regard to advertising which I feel most strongly should not be allowed to pass without protest. Mr. Rymer says, "But we in England know that *advertising one's name in any form is not in accordance with the rules of the profession*, therefore I think it is absolutely wrong and unprofessional for any Englishman to allow his name to be advertised when he has discovered anything fresh."

I was under the impression that it was universally recognised that there was all the difference between addressing oneself to the lay public on the one hand and to one's professional *confrères* on the other, inasmuch as the former class is incapable of judging and discriminating, and it is therefore easy for any man, good, bad, or indifferent, to achieve a cheap notoriety if he chooses to appeal to it.

If once the dogmatic statement I have italicised were conceded, where would be our professional societies, hospital staffs, &c.? Nay, if Mr. Rymer will pardon a little personality, how does he wish us to reconcile his holding these views with the appearance in this Journal of his paper to which his name is attached?—at all events, we might have been spared the ten letters or so appended.

Again, Mr. Rymer says, "If by your expressions of opinion you come the conclusion that professional inventors may allow their names to be attached to their inventions, then I see no objection why I should not also allow my name to appear in connection with one or two little specialities which I have got my chemist to prepare." It is hardly clear, I think, what specialities Mr. Rymer is referring to. If he means preparations his chemist is to sell to the layman, I see grave objection to their bearing his name, for the reasons I have already given. If, however, what he has had prepared have been found by him useful in his practice as a dental surgeon, I think the sooner the profession receives the benefit of his therapeutic discoveries the better. I have always understood it regarded as rather culpable than otherwise to be the possessor of a secret remedy, or anything approaching thereto.

Yours, &c.,

November 21, 1899. M.R.C.S.Eng.

Association Intelligence.

The Honorary Secretary of the Association desires to emphasise the statement he has on several occasions previously made, viz., that anonymous communications relating to cases of irregular practices, or alleged infringements of the Dentists Act, cannot receive from him that attention he would wish to bestow upon them, or they may deserve.

Annual General Meeting.

The meeting will be held in the Yorkshire College, Leeds, on Saturday, Monday and Tuesday, June 2, 4, 5, 1900. Progress is already being made in connection with the local arrangements. Below we print a letter from the Museum Committee, which we hope will receive the careful attention of all who have specimens to exhibit.

The Midland Branch, on the last occasion of the Association's meeting being held in its district, distinguished itself by the excellent museum exhibited in Manchester. The care and trouble taken by the Museum Committee on that occasion in the arrangement and return of the specimens entrusted to their charge, should be a guarantee in the present instance that similar treatment may be confidently expected, and it is to be hoped, therefore, that members will most heartily co-operate with a view to making this section of the meeting a success.

Some half-dozen sub-committees have been appointed to deal with other matters and departments at the forthcoming meeting, and the results of their labours will be made known in due time.

For the social headquarters of the Association the Hotel Métropole has been fixed upon. It is the newest and best, as well as one of the largest of the Leeds hotels. A special tariff during the meeting has also been arranged for.

MUSEUM AT THE LEEDS MEETING IN 1900.

In connection with the Annual General Meeting of the British Dental Association, to be held in Leeds at Whitsuntide, 1900, the Museum Committee held a meeting at the Queen's Hotel, Leeds, on the evening of July 20, at which the following resolutions were passed :—

(1) That the Museum consist of specimens illustrating—

(*a*) The Technics of Mechanical Dentistry as taught in the Schools. Such specimens as the teachers are kind enough to supply.

(*b*) Methods adopted by practitioners in the production of crowns :—(1) Impressions and models. (2) Specimens of several stages and tools used. (3) Finished crowns.

N.B.—It is desired that exhibitors show not so much the finished work simply, as illustrations of each and all the stages of the work. Furthermore, it is rather the "every-day" methods, than any fancy work that the Committee desire.

(2) That the Schools of the United Kingdom, and all interested gentlemen, be invited to send contributions.

In accordance with the above, the Committee have very great pleasure in asking your hearty co-operation, so that the Museum may prove a success.

In order that all specimens, tools, &c., may be returned after the meeting, it is desired that each be labelled with name and address of lender.

It would also be a great help if intending subscribers would let me know as early as possible, about the amount of room which will be required for exhibiting their specimens.

STEPHEN D. HEY,
Hon. Sec. of Museum Committee.

Belmont Villa, Clarendon Road, Leeds.
October 1, 1899.

International Dental Congress, Paris, 1900.

AN account of the forthcoming Congress to be held in Paris, from August 8 to 14 next year, will be published in the January issue of the Journal. Intending members from Great Britain and Ireland are desired by the General Committee in Paris to forward their subscriptions (£1) to the Treasurer of the British Dental Association, 40, Leicester Square London, W.C.

Representative Board.

A MEETING of the Representative Board was held at 40, Leicester Square, London, on Saturday, December 2, Mr. STORER BENNETT (President), in the chair. The following members attended, viz.:—Messrs. J. Howard Mummery, President of the Association ; J. Ackery, J. H. Badcock, E. G. Betts, F. Canton, W. H. Coffin, G. Cunningham, W. H. Dolamore (Treasurer), W. Hern, W. R. Humby, S. J. Hutchinson, L. Matheson, W. B. Paterson (Hon. Sec.), W. Rushton, Hopewell Smith, S. Spokes, J. S. Turner, and C. West (London) ; D. Headridge (Manchester) ; W. E. Harding (Shrewsbury) ; F. V. Richardson, J. H. Redman, Walter Harrison (Brighton) ; W. H. Breward Neale, A. E. Donagan, A. T. Hilder (Birmingham) ; J. Charles Storey (Hull) ; Rees Price (Glasgow) ; R. P. Lennox (Cambridge) ; T. Gaddes (Harrogate) ; L. Read (Newbury) ; J. S. Amoore (Edinburgh) ; H. R. F. Brooks (Banbury) ; D. Corbett, Jun. (Dublin) ; J. Fenn Cole (Ipswich) ; E. Apperley (Stroud) ; Frank Harrison (Sheffield) ; I. Renshaw (Rochdale) ; G. Brunton (Leeds).

The minutes of the last meeting were read and signed.

Letters regretting inability to attend were read from Messrs. W. A. Hunt, Baillie Wilson, C. Robbins, and T. A. Goard.

THE LATE MR. MACLEOD.

The PRESIDENT said that since the last meeting the Board had lost one of its oldest members by the lamented death of Mr. MacLeod. He referred to his long connection with the Board, and to the great interest he had always taken in Association matters. In moving a vote of condolence he begged to be allowed to convey to Mrs. MacLeod and family the sentiments of the meeting.

TREASURER'S REPORT.

The TREASURER reported that a further purchase of three-and-a-half per cent. India Stock had been made since the last meeting and added to the Reserve Fund. The total investment in this stock was now £1,300.

COMPANIES BILL.

The HON. SECRETARY read a report from the Sub-committee appointed to deal with the "Companies Bill." On the motion of Mr. HARDING, seconded by Mr. HERN, the report was received and adopted.

GRANTS IN AID OF SCIENTIFIC RESEARCH

The following report upon the question of "Grants in Aid of Scientific Research," was received from the Business Committee, viz. :—

"The Business Committee are of opinion that in giving effect to the principle of grants in aid of Scientific Research it is desirable to set aside a sum of money, not exceeding £30, for the year 1900, from the finances of the Association, and that the Business Committee, or such other Committee as the Representative Board may appoint, have charge of the arrangements in connection with the application of such grants."

Mr. HOPEWELL SMITH in moving that the report be received and adopted, said that the question had been fully discussed at the last Board Meeting as well as at Ipswich.

Mr. HUTCHINSON seconded the motion.

A letter was read from Mr. Hunt, of Yeovil, upon the question, in which he stated that he was glad to see a definite sum of £30 had been suggested for a limited time, viz., one year, by the Committee. He believed in reserving the finances of the Association for political objects, and would prefer to see a scientific body like the Odontological Society undertake the question of grants.

Mr. HEADRIDGE asked if the money grant would cover instruments used in scientific investigations.

The PRESIDENT said it would, no doubt, but the details had better be left in the hands of the Committee.

Mr. REES PRICE said he should vote against the motion. He considered the report of the Business Committee to be an unsatisfactory one. The question of the expediency of instituting such grants had been discussed upon a former occasion, but the Committee had omitted to express an opinion on the question. The question of the method of distribution of the money as grants had not been referred to by the Committee. He was of opinion that the Committee should have more fully indicated the lines of action, and he must express himself as disappointed at the meagreness of the report.

The PRESIDENT wished to point out that the principle of grants in aid of scientific research had already been established by the Association in General Meeting at Ipswich. The question was a new one to the Board who had the management of the details, and under the circumstances the Committee felt it would be better not to be too definite in regard to rules in their present report.

Mr. HUTCHINSON said doubtless the Committee would furnish the Board with a report as to the method of distribution of grants it advised when the time came.

In answer to Mr. Matheson the HON. SECRETARY read the Minute of the Annual Meeting at Ipswich, which referred the question to the Board for the carrying out of details.

The motion was then agreed to.

Upon the question of the composition of the Committee to take charge of the arrangements in connection with grants, it was moved by Mr. MATHESON, seconded by Mr. COFFIN, "That the matter be left in the hands of the Business Committee to carry out details," and a rider was added "That the Committee shall have power to add to their number." The motion was carried.

MEDICAL COUNCIL.

The HON. SECRETARY reported that the Medical Council had removed the name of Louis Henry Goodman from the Dentists' Register, he having been imprisoned for committing a felony.

The case of a dentist employing an unqualified assistant in sole charge of a branch practice was mentioned. The case was before the Medical Council at its May Session. Between that date and the recent Session the defendant had dismissed his assistant, and had conducted his practice in a legal and proper manner, and his counsel having given further assurances on his behalf, the Medical Council adjudged him "not guilty" of "disgraceful conduct in a professional respect."

PROPOSED ALTERATION OF STANDING ORDERS.

Mr. WEST moved (1) "That the Standing Order of the Representative Board of August 27, 1885, be made a permissive order by the insertion of the word 'may' between the words 'Association' and 'be.'"

The Standing order in question stated:—"That once in five years the Annual Meeting of the Association be held in London or its neighbourhood." (2) "That the aforesaid Standing Order be suspended for the year 1901 to enable the Southern Counties Branch to renew its invitation if so disposed."

He said that he did not bring forward the motion in his capacity as President of the Metropolitan Branch, but as a member of the Board. He was averse to altering rules or standing orders as a general broad principle, but, on the other hand, he considered that standing orders which were to be regarded as unalterable as the laws of the Medes and Persians might not always be of advantage to the Association. He did not see why London should have a special standing order in its favour. In times past, no doubt, the rule worked well, but Branches had increased and invitations were more numerous now. He was not aware that London had any more right to a fixed festival every five years than Edinburgh or Dublin. A period of eleven years elapsed between the meetings in the case of Edinburgh, and nine years in that of Dublin. London should not be given the right to make a rule binding for all time, even if all its members in the British Dental Association asked for it, and he was not aware that they ever had. An epidemic of disease in London might demonstrate the absurdity of such an inflexible rule.

Mr. RUSHTON seconded the motion, *pro forma*.

Mr. NEALE pointed out that if the standing order were to be altered as proposed it might as well be removed altogether, for it would cease to have any meaning.

Mr. MATHESON suggested that Mr. West's second motion, viz., by suspending the action of the standing order, indicated a way out of the difficulty.

Mr. CUNNINGHAM supported the views of Mr. Neale and Mr. Matheson. His remembrance told him that the standing order was originally proposed in a fit of benevolence for the excellent receptions given to the Association in the provinces. The question was now either removal or suspension of the standing order. If there was feeling in the Southern Counties Branch, respect should be shown to it.

Mr. READ thought before they discussed the question of the Southern Counties Branch inviting the Association, he would like to know whether there was a definite invitation before them. He did not consider that a meeting in London once every five years was too often.

Mr. RICHARDSON said as Hon. Secretary of the Southern Counties Branch he had no authority to lay an official invitation before the meeting. The Branch had invited the Association at the Ipswich meeting for 1900. Since the non-acceptance of the invitation nothing further had transpired.

Mr. HARRISON said, as a member of the Southern Counties Branch, he thought there would be reluctance on the part of the Branch to follow a meeting held in London.

Mr. WEST wished to point out that the passing of motion No. 1 did not prevent a meeting being held in London every five years, if thought desirable.

The PRESIDENT having put motion No. 1 to the vote it was lost.

Mr. WEST, in submitting motion No. 2, said he did so simply as an alternative motion, and he should like it voted upon.

Mr. MATHESON considered that the motion did not commit anybody to a definite course, and seeing also that the Southern Counties Branch might or might not invite, he was inclined to support it, but he suggested that it might be amended by deleting the reference to the Southern Counties Branch and inserting "in order to enable *any* Branch to invite the Association if so disposed."

Mr. **West** expressed his willingness to accept the amendment.

Mr. **Storey** moved the adjournment of the debate.

Mr. **Dolamore**, as Hon. Secretary of the Metropolitan Branch, said he was anxious to know what decision was to be arrived at, as time was needed for making arrangements for a meeting in London. He thought the Branch might be placed in a difficulty if no power were given it to invite.

Mr. **Spokes** was of opinion that if the standing order was to be suspended it would not be possible for the Metropolitan Branch to send an invitation for 1901.

The **President** suggested that if Mr. West obtained leave to withdraw his motion for the present, a motion for the suspension of the standing order in 1901 might be brought forward on a future occasion.

Mr. **West** having asked leave to withdraw, permission was granted.

RE-ELECTION OF MEMBERS TO THE BRITISH DENTAL ASSOCIATION.

The following resolution from the Scottish Branch Council was read:—"That this Council empowers its representatives to urge upon the Representative Board the advisability of submitting the names of candidates for re-election to the British Dental Association to the Council of any Branch to which they may formerly have belonged."

Mr. **Amoore** explained the circumstances leading up to the passing of the resolution by the Branch.

Mr. **Rees Price** added some further details.

The **Hon. Secretary** having explained the action of the Business Committee in such cases, the following resolution was moved by Mr. **Renshaw** and seconded by Mr. **Matheson**, viz.:—"That the names of candidates for membership of the Association brought before the Business Committee for election be printed on the agenda convening the meeting at which the election shall be decided."

Mr. **Canton** and Mr. **Matheson** testified to the care exercised by the Business Committee in cases of election.

Mr. **Smith Turner** wished to say, as an old Hon. Secretary of the Association, that although care had always been exercised in elections by the Business Committee or Board, any probable loss by the delaying of election through the publication of names upon the agenda paper would be small, considering the gain in safety. He thought Branch Hon. Secretaries should keep in close touch with the Hon. Secretary of the Association in such matters, and by mutual help thus afforded the risks would be minimised.

Mr. **Hutchinson** pointed out that by the resolution it was only incumbent on the Business Committee to publish the names of candidates on its agenda paper. The Branches were exempt. Thus a loophole for escape was afforded.

Mr. **Neale** moved as an amendment "That the names of all candidates for election to the Association, either by the Representative Board, the Business Committee, or by any Branch, be published in the Journal at least a fortnight before election."

Dr. **Gaddes** seconded, and was of opinion that the secretarial duties would be simplified by publication of the names in the Journal.

The amendment was carried, and also as a substantive resolution.

Other business was then transacted, and the meeting adjourned.

Metropolitan Branch.

A MEETING of the Metropolitan Branch was held at the Dental Hospital, Leicester Square, on Wednesday, October 25, the President, Mr. Charles West, in the chair.

The Minutes of the last meeting were read and confirmed.

Messrs. Schelling and Preedy were appointed auditors of the accounts for the year ending December 31.

Mr. J. H. BADCOCK read a short communication on "A Case of Open-bite."[1]

Mr. NORMAN G. BENNETT said: An old lady, aged between 60 and 70 years, came to me complaining of pain on one side of the chin. The pain was associated with a tingling sensation and numbness from time to time, which of course led me to think of some pressure on the nerve trunk. I had made her a full vulcanite lower case twelve months previously, and I found the absorption of the alveolus, which had been very extensive at the time I made the case, had increased to such a degree that the vulcanite was pressing on the nerve trunk and producing these sensations in the chin. This sort of case is doubtless familiar to many of you, but I have not met with it myself before.

Mr. SCHELLING: I had an exactly similar case, which was relieved by relieving the pressure of the denture.

Mr. DOLAMORE: I have already recorded elsewhere a somewhat curious case that came under my observation, not pressure on the nerve trunk, but showing the extent to which absorption does go on after the extraction of teeth; and how pressure is brought to bear on points one would perhaps think impossible under ordinary conditions. The case, which perhaps some of you may remember, was pressure on the duct of the submaxillary gland. There was no doubt about it, I think. There was swelling under the jaw in the position of the submaxillary gland, which increased in size after meals. When she left out the plate the swelling disappeared. It was relieved simply by cutting away the lower edge of the plate, though this had caused no soreness. The swelling did not recur.

"SUNDRIES."

Mr. LEONARD MATHESON brought forward several communications of interest. I have here (he said) a series of models which rather prettily illustrate a not uncommon condition. We often see, in cases of superior protrusion, the lower incisors biting against the gum, perhaps a quarter of an inch behind the projecting upper incisors. Before anything can be done in the way of retraction, one has to attempt the pressing downwards of the lower incisors or the raising of the bite by encouraging the upward growth of the molars and bicuspids in the lower jaw and downward growth in the uppers. The models show a condition of things of that kind. The lower incisors were just closing upon the gums. The second models show the condition of things after this plate had been worn, which was made simply for the lower incisors to impinge against. You will observe that the vulcanite has been thickened once or twice. I would ask you to look at the models in profile and notice how the incisors, molars and bicuspids in the second lower model are more or less on a level, whereas in the first the lower incisors rise in a very marked manner. The third models show not quite the completion of the case, but the partial retraction of the upper incisors, the lower still retaining their position of being on a level with the molars. It seems pretty clear that the lower incisors were pressed downwards into their sockets rather than that the level of the molars and bicuspids was raised.

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[1] Published on p. 686.

There is another small matter which I bring before you with diffidence, as it seems to me very likely the thing has been done before, although I have not met with it. It often happens that an upper denture comes into one's hands which has done good service, and which articulates well with the lower teeth, but which has to be re-mounted owing to changes in the palate and in the alveolar ridge. In such a case as that one takes an impression either with the plate or otherwise, and one wishes to get the articulating surfaces of the teeth precisely as they were before. One method is to take an over-bite, but a difficulty I have found in so doing is that a very little raising of the teeth when they are set into the wax a second time is enough to throw the whole thing out, and yet it is very difficult to detect the error. To overcome this difficulty I have set into the plaster key a wire, which rests on a prolongation of the lower model and which shows the least rising of the key in front. It may be said that the difficulty can be got over by having keys in front. That is so, but you may want to alter the teeth in front or put in new ones of a different pattern. There is one thing one has to guard against, and that is, that the plaster will sometimes alter in shape and raise the wire somewhat from the block, so that if it has been lying by for a day or two one ought to see that it is actually down.

There is another small communication I should like to make—a method of refixing a porcelain front to a broken crown or a broken bridge, a method which I saw adopted in a case which came into my hands from another practitioner, and which I have been glad to make use of, and have found successful. Take the case which I did, as an example, a case in which I crowned with a collar crown an upper left canine. Some months afterwards the porcelain broke off. I thought it was a suitable case for trying a method I saw in one of the Journals, which consisted in soldering on to each pin of the new porcelain face a little tube, passing these tubes through the enlarged holes of the old pins, and squeezing back the tubes on to the back to hold it down, just as a cobbler squeezes down the eyes for his bootlace. That seemed to me rather a good method, and I tried it in this case; but either from want of practice or from clumsiness I failed to get a satisfactory result. Then I thought I would adopt this other method. I joined the already enlarged pin-holes together, and freely bevelled the sides of the slot thus made. Then, having adjusted and fine-fitted my new porcelain front, and bent the pins so as slightly to diverge, I smeared phosphate cement all over the back of the porcelain, squeezed it home, cleared away what phosphate was unnecessary, and filled the slot up with amalgam. I saw the case about nine months after I put it in, and it certainly made a very nice joint. The thing was firm and seemed very likely to hold. It goes without saying that the thicker the original gold back is, the better. In case of a close bite the method would not be so good.

The only other things I have to show are two straight burnishers which I find very useful, particularly for dealing with the cervical edges of approximal cavities in incisor teeth, more especially with non-cohesive work, gold, or gold and tin.

Mr. DOLAMORE : I should like to know the length of time that the regulation case was under treatment. That always seems the question patients ask —they want to know how long it is going to take, and it is therefore always interesting to know how long a successful case has taken.

Mr. BADCOCK : Does Mr. Matheson find that such a plate as he describes has any tendency to throw out the upper incisors and make the condition temporarily, at any rate, worse than it was before?

The PRESIDENT asked the age of the patient.

Mr. REINHARDT : How long was the plate worn to raise the bite before the regulation of the teeth was commenced? I have just finished a very similar case, and I am glad to say that I have unconsciously gone through the same round and the same method of working as Mr. Matheson, with the exception that instead of having to replace the vulcanite at the back of the upper incisors, I laid in a piece of metal there. I first put in a vulcanite plate and then raised it by facing the vulcanite plate with metal. The plate was worn about eight months before any advantage was gained.

Mr. NORMAN BENNETT : I had exactly the same experience as Mr. Reinhardt in connection with biting on the vulcanite. I put in a plate two months ago. The patient went away, and came back at the end of the month saying that she had bitten out a piece and swallowed it. The vulcanite, which was fairly thick, had been bitten right through. I adopted the same method as Mr. Reinhardt, and put in a piece of metal.

Mr. BADCOCK : Is the plate worn continuously, or taken out for meals? I should like to congratulate Mr. Matheson on the success of his cases.

Mr. KNOWLES asked the object of smearing on the osteo.

Mr. RUSHTON asked if Mr. Matheson had heard of a method which does away with the use of a plate altogether? Mr. Colyer has lately published an article in which he states that by extracting one of the lower incisors the height of the incisors is reduced.

Mr. F. J. BENNETT : That really touches the point as to the consideration of the etiology of the raised condition of the lower incisors. It is what Mr. Spence Bates used to call the "saddle shape," and is due to crowding when the teeth are unerupted. Probably the canines are unerupted, and in some way from their conical shape, the incisors are wedged out, resulting in a fan-shaped appearance, with the two central incisors standing above and the laterals sloping down. The solution is readily brought about by extracting one of the incisors, which allows the teeth to at once fall into an easier line, and in doing so they drop back into their old places. The extraction of an incisor is rather a radical treatment and is to some slight extent disfiguring. Another point in Mr. Matheson's case is, that there is a tendency for the lower incisors, when biting against a hard substance, to be driven inwards, which gives a rather disagreeable appearance to the mouth, and has to be corrected of course subsequently. But by having the groove which Mr. Matheson has in his case, the lower incisors are prevented taking this very awkward slope backwards, and are instead driven straight down into their sockets.

Mr. RICHARDS : It is sometimes very important in a case of articulation to reduce the time in which the plates are to be worn on account of their detrimental effect upon the teeth. The plan I have adopted in these cases is to cut the incisors down, and thereby either obviate the necessity of wearing this plate or shortening the time considerably for the wearing of it.

Mr. **MATHESON**, in reply, said: I cannot give the length of time exactly, but it was rather a long time, and purposely so. The child has been under my supervision almost since the teeth began to erupt. The mother was extremely eager to have early treatment. I put her off and off until I thought I might venture to begin the work, although personally I should have preferred even to leave it a little longer. The first plate was put in one October, and the teeth began to go down in the course of the first month, and before the following February they were quite down as far as I wanted them to go, practically as far as they now are. As in this case, so I have had other cases where the principal part of the work was done in the first few weeks. I always like to put off retraction until the bicuspids are at all events showing themselves. As the bicuspids in this case were not down sufficiently, I kept this plate in from the February until the October following. On other grounds one objects to using an appliance of this kind for longer than is absolutely necessary. But I think in this case the length of time was a gain, because it helped to fix the lower incisors more firmly in their new position. But usually I should not hesitate to begin the retraction of the upper incisors as soon as the lowers are down in their place, always watching them carefully to see they do not rise again. With regard to the cause of the lower incisors assuming the position referred to by Mr. F. J. Bennett and Mr. Rushton, my own opinion is that in this particular case, whatever may be the cause in others, it was certainly not due to overcrowding, but to a simpler cause, which I think may commend itself to you if I point it out. In this case, the lower incisors coming through so far behind the upper incisors would have no opposition, as the molars and bicuspids would have, until they rose to a point considerably higher than the latter.

That seems to me to be more likely the cause of the incisors assuming their high position rather than any crowding, more particularly as the fan-shape, which no doubt takes place where you get extreme crowding, is not noticeable here. With regard to the original condition being worse for the time being, that is certainly the case in some instances, but I do not think it was particularly marked here. The plate was thickened, not merely because of wear—it does wear a little—but because, as the lower incisors were pressed down somewhat, I wanted to press them down still more, and so I added the vulcanite for that purpose. I made it just thick enough at first to raise the bite at the back, and then added to it afterwards. I have not myself found any breakage and have not used metal, but I quite understand that in some cases it would be highly desirable. The method described by Mr. Richards I should think a very useful one, but one would shrink from it ordinarily because the grinding down of incisors is a painful thing to do, especially in small children. Under the circumstances described by Mr. Richards I should think it is a very good practice.

At meal times I should certainly keep the plate in. After the first few days children appear to be able to eat, I do not know quite how, but they do. I think one is more likely to get the incisors down under these conditions than if the plate is only kept in between meals, because the child will not press on the plate between meals of its own accord.

With regard to the reason for using osteo, that was simply as an additional hold and still more as excluding any moisture or particles of food between the crown and the back.

Mr. **RUSHTON**: I should like to point out what I think to be a weak part of Mr. Matheson's argument. I do not think in the normal state the lower incisor teeth ought to touch the front teeth or the palate, unless there is some pressure from behind. It does not touch in my case and in the case of a few friends here whom I have asked.

Mr. MATHESON: My statement was merely an expression of opinion, and I think Mr. Rushton and I would probably agree to differ. No doubt there are many cases in which the lower incisors have a space between their tips and the palate or the upper teeth, but it seems to me also that in many cases directly you do relieve pressure from rapidly growing teeth they will grow up further than you want them to grow. It does not follow because that happens in some cases, that it happens in all. I am not prepared to give any proof in the matter; it is only an opinion that I am expressing.

Mr. EDWARD PREEDY read a communication on "Two Cases of Replantation."[1]

Mr. CORNELIUS ROBBINS exhibited a new form of bicuspid crown.[2]

Mr. GEORGE TORPEY kindly postponed his communication to a subsequent meeting, and the President having thanked the members for their communications, the meeting terminated.

THE Annual Meeting of this Branch will be held on Tuesday, January 16, 1900, at 40, Leicester Square, at 8 p.m.

AGENDA.

Minutes of previous meeting.
Election of President-elect.
Election of four members of Council.
Election of Hon. Secretary.
Casual Communications.
Address by the out-going President, Mr. C. West.
Induction of New President, Mr. Ashley Barrett.
Council Meeting at 7 p.m.

W. H. DOLAMORE, *Hon. Sec.*

Scottish Branch.

A MEETING of the Scottish Branch was held in the Hall of the Faculty of Physicians and Surgeons, St. Vincent Street, Glasgow, on Friday, November 24, at 8 p.m. There was a good attendance, the following being present:—Messrs. J. Leslie Fraser (Inverness), President; C. Rees Price, J. A. Biggs, Jas. M. McCash, Wm. Wallace, R. S. Grant, Alex. Naismith, J. B. Watson (visitor), J. C. Gardner, J. G. S. Angus, A. B. Young, W. D. Anderson, Wm. Taylor, Thos. Wilson, W. F. Martin (Glasgow); John Stirling (Ayr); E. J. Wallis (Alloa): Jas. Stewart (Coatbridge); R. Keith Common (Stirling); P. Cumming (Falkirk); J. S. Amoore, F. Page, A. Kay Finlayson, F. J. Turnbull, S. Simmons, D. Baillie Wilson (Edinburgh).

After the minutes of the previous meeting had been duly approved, the following gentlemen were proposed and seconded for membership in the Branch:—Messrs. A. S. Anderson, L.D.S.Edin.; J. H. Gibbs, L.R.C.P. & S., L.D.S.Edin.; Wm. Guy, F.R.C.S., L.D.S.Edin.; J. O. Stewart, L.D.S.Edin.; J. A. Young, L.D.S.Edin., all practising in Edinburgh.

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[1] To be published, with discussion, as an original communication.

[2] See p. 689.

Messrs. John Gillespie, L.D.S.Glas. (Irvine); H. H. Chapman, L.D.S.Edin. (Edinburgh); J. D. H. Jamieson, L.D.S.Edin. (Edinburgh); J. Kyle Mackintosh, L.D.S.Edin. (Inverness), were unanimously elected members of the Branch.

The PRESIDENT, in a few well-chosen words, referred to the great loss which the Branch, and the profession as a whole, had sustained since they last met together, in the death of Mr. W. Bowman MacLeod. Possessed of a very strong and outstanding personality, Mr. MacLeod, he said, had been able to gain the respect and affection of all with whom he came in contact. They would long have cause to mourn the loss of one who had done, perhaps, more for dentistry in Scotland than any one who ever lived. A letter of sympathy and condolence had been sent to Mrs. MacLeod on behalf of the Council and the Branch.

Mr. W. D. ANDERSON gave a short account of a case of "Necrosis of the External Alveolar Plate, due to the injection of a local anæsthetic." This was very interesting, as showing the danger of experimenting with preparations of unknown formulæ. Mr. Anderson had fortunately, perhaps, elected to try the effect on himself, and though he had to record considerable suffering and discomfort extending over some eight months, he stated that except for a very slight looseness the teeth affected were now quite comfortable. The condition of the syringe used was above suspicion.

Mr. J. S. AMOORE gave a few notes on the use of pyrozone in bleaching teeth. Using a 25 per cent. ethereal solution, he was able to report some very successful results.

Mr. KEITH COMMON said he had had considerable experience and success in the use of pyrozone for bleaching purposes. He pointed out the necessity for using gold or platinum points when working with it, and its non-success when the darkening of the tooth was due to staining with amalgam.

Mr. REES PRICE also reported some very gratifying results.

Other casual communications were brought forward by Messrs. ANGUS, SIMMONS, YOUNG and STIRLING.

The meeting terminated with votes of thanks to the gentlemen who had contributed, and to the President, who had travelled from Inverness in order to be present at the meeting.

The next meeting of the Branch will be held in Edinburgh on Saturday, February 17, 1900, and will take the form of a demonstration meeting. Members willing to give demonstrations are requested to communicate with the Hon. Secretary at an early date.

The Leeds and District Section of the Midland Branch.

THE first meeting of the session was held in the Leeds Medical School on November 21. The retiring President, Dr. GADDES, delivered his Valedictory Address.[1]

Dr. Gaddes then inducted Mr. E. J. Ladmore to the chair, who received a hearty reception from the members.

The PRESIDENT then gave his Inaugural Address.[1]

The SECRETARY read the minutes of the previous general meeting, which were confirmed.

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[1] To be published as an original communication.

On the motion of Dr. GADDES, seconded by Mr. W. TAYLOR, it was unanimously agreed: "That this Society do something by way of entertainment" at the coming Annual Meeting of the British Dental Association in Leeds.

The subject for discussion was "Repairs," Mr. G. Brunton taking "vulcanite work," and Mr. C. Rippon "metal work."

Mr. BRUNTON mentioned some useful methods of temporary repairs. One was for a cracked plate in which he drilled holes at either side of the crack, and laced it up with silk, running in paraffin. In repairing vulcanite he advocated filing the edges to a feather edge, and working the surface with a scalper; the rubber should be applied direct, and the case flasked and vulcanised forthwith. The cutting of dovetails, and saw cuts, and also waxing, he considered unnecessary. Mr. Brunton regretted not going as fully into the subject as he should have liked, having had so many calls upon his time lately.

Mr. RIPPON said that in soldering he used plaster or other investments as little as possible; plates were thoroughly cleaned in acid, and well washed, the teeth and backs not to be soldered were painted with whiting, and after heating to a dull red in a muffle the case could be soldered. Some pretty clamps were shown for holding bands to the plates, and for holding wires a slit was cut in the plate, and the flattened end of the wire inserted. Mr. Rippon referred to the cause of cracked teeth, maintaining that it was due to uneven "heating up," and not to rapid cooling.

The PRESIDENT agreed that dovetails were unnecessary in repairing vulcanite work, being of opinion that there was an adhesion of the new rubber to the old, and not a mechanical union. He advised that both vulcanite and metal plates should always be repaired without closing the edges of the crack, so that the fit of the plate would remain the same.

Dr. GADDES referred to the use of fusible metal as a great convenience in vulcanite repairs.

Mr. JEFFERSON did not see the necessity of roughening the surface of vulcanite; so long as the surface was clean the new rubber would adhere, and he believed there was a chemical action, the new rubber giving up something to the old, and had noticed that at the line of union the new rubber was lighter in colour, and the old was darker.

Mr. HEADRIDGE, Mr. MITCHELL, Mr. TAYLOR, and others joined in the discussion.

Mr. C. RIPPON gave an interesting casual communication. The patient, a gentleman aged 35, suffered neuralgic pains of a most acute form for the past five or six years. The pain was excessive, the attacks occurring at irregular intervals and lasting about three days; this was confined to the left side of the face. On examining the mouth it was noticed that the temporary canine was still *in situ*, and from enquiries made nothing could be elicited concerning the permanent canine. Mr. Rippon obtained a radiograph of the part, and was successful in getting a picture showing the unerupted canine. The temporary tooth was extracted, giving immediate and permanent relief. It is now four weeks since the temporary canine was extracted, and already the permanent tooth is visible.

The PRESIDENT spoke highly of the communication, and commended the resource to the radiograph and the successful result.

The next meeting will be held on Tuesday, December 19, when the "Treatment of Children's Teeth" will be the subject for discussion.

Reports of Societies and other Meetings.

General Medical Council.

Thursday, November 30, 1899.

Sir WILLIAM TURNER in the Chair.

THE Council proceeded to the further consideration of the charge proved against a dental practitioner, on June 3 last, of employing an unqualified assistant. The defendant attended, accompanied by his counsel and his solicitors.

Defendant's counsel said that immediately on the adjournment of the case last session, the defendant took steps to obtain, in place of his unqualified assistant, a qualified man, and had entered into an agreement with a gentleman holding the diploma in dental surgery of Glasgow University.

The PRESIDENT pointed out that this gentleman, although duly qualified, was not on the Register. It was admitted that that was so, but it was argued that under the resolution of the Council and Section 6 of the Dentists Act, it was sufficient for a person to be "qualified to be registered" in order to come within the meaning of a "qualified assistant."

The PRESIDENT was of opinion that registration was also necessary, and defendant's counsel undertook that the assistant's name should be placed on the Register.

A letter was read from the complainant stating that he did not intend to offer any statement, and in which he said that since the beginning of these proceedings he had learnt that the practice with which defendant was charged was a very prevalent one; and therefore, while rejoicing that it had been put a stop to in one case at least, he hoped defendant would not suffer any punishment for doing what was also done with impunity by many men more highly placed in the profession.

The Council found that the defendant had not been guilty of infamous conduct in a professional respect, and the case was dismissed. The PRESIDENT, however, stated that the facts were undoubtedly grave, and disclosed a condition of things which the Council eminently disapproved of.

The Council also had before them the case of Henry Louis Goodman, of Ludgate Hill, now undergoing imprisonment for intent to defraud. Mr. Goodman's name was ordered to be removed from the Register.

Tuesday, December 5.

The following Report from the Executive Committee in regard to the amendment of Section 11 of the proposed Standing Order for regulating procedure in Dental Penal Cases came before the Council on the above date:—

REPORT BY THE EXECUTIVE COMMITTEE ON SECTION 11 OF THE DENTAL STANDING ORDERS.

On June 9, 1899, the General Council passed the following resolution:—

"That the Standing Order for regulating procedure in Dental Penal Cases be adopted with the exception of Section 11, pp. 5 and 6, and that the Executive Committee be requested to reconsider this Section as proposed, and to report thereon to the November Session of the Council."—(*Minutes*, vol xxxvi., p. 98.)

The Executive Committee, having understood that this question had been previously under the notice of the Dental Committee, who had originally prepared the standing order submitted to the Council, considered it right that the opinion of that Committee should be again obtained with respect to the proposed amendment.

By the direction of the President, Mr. MUIR MACKENZIE prepared a new Clause 11 with a view of bringing it as far as possible into harmony with the procedure adopted in medical cases, and, with the approval of the Dental Committee, the Executive Committee now submit to the General Council the revised form of the proposed new Clause.

Proposed new Clause to take the place of Clause 11 in the new standing order in regard to Penal Erasures from the Dentists' Register (*Minutes*, vol. xxxvi., p. 98, and Appendix xiv.) :—

"11. The Council shall deliberate on the Report in private, and, at the conclusion of the deliberation, if the matter is, in the opinion of the Council, ripe for decision, the President shall call upon the Council to vote on the following Resolution to be put from the Chair :—

"(1) In the case of a practitioner who has been convicted of a felony (or misdemeanour, or crime, or offence) that having been proved to have been convicted of a felony (or misdemeanour, or crime, or offence), the Registrar be directed to erase his name from the Dentists' Register.

"(2) In the case of a practitioner charged with infamous or disgraceful conduct in a professional respect (*a*) that the Council do proceed at once to pronounce its judgment on the case."

If this resolution is not carried, the further hearing of the case will stand adjourned till the next Session of the Council, and the hearing thereof will be taken at the next Session as an adjourned case.

If this resolution be carried, the Council shall be called upon to vote on the following resolution to be put from the chair :—

"(*b*) That on the facts found in the report of the Dental Committee it has been proved that has been guilty of conduct which is infamous or disgraceful in a professional respect."

If this resolution is not carried the inquiry will be at an end.

If the resolution is carried, and the Council proceed at once to pronounce their decision, the Council shall be called upon to vote upon the following resolution :—

"(*c*) That having been proved to have been guilty of infamous or disgraceful conduct in a professional respect, the Council do direct the Registrar to erase from the Dentists' Register the name of ."

Mr. TOMES, in explaining the Report, said that the Council adopted at its last session some new standing orders to enable it to deal with more precision with dental penal cases, but Clause 11 was a very brief one and did not give to the Council the opportunity of using the sort of discretion which it very frequently exercised in medical penal cases. The Clause, as it was adopted on the last occasion, dealt no option but to vote at once on the question of striking off or not striking off the name. The proposed new Clause separated the finding of guilty or not guilty of the charge, which was put in one resolution. It separated that resolution from the other resolution, which inflicted or did not inflict the penalty of striking off the Register. The separation of those two Clauses had been of great value in medical penal cases. The Council had often found a person guilty of the charge made against him but had not struck him off the Register; at the same time it had not said that it would not, and had held the matter in suspension over him. There were differences in the Dentists Act and the Medical Act in saving time and expense, which rendered it impossible to adopt *verbatim* the method of procedure to be found in the standing orders in the medical penal cases, but if the present report was compared with the report of procedure of the purely medical penal cases, it would be found that it was as close to it as it was possible to make it, bearing in mind that the Dental Committee found the facts. He moved: "That the Report be received and printed on the Minutes, and that the amended Clause 11 therein contained be adopted by the Council as a standing order."

Mr. BRYANT seconded the motion, which was agreed to.

COMPANIES ACT AMENDMENT BILL COMMITTEE.

Mr. Tomes presented an interim report from the Companies Act Amendment Bill Committee, stating that the Lord Chancellor's clause prohibiting the practice by companies of the business or profession of physician, surgeon, dentist, or midwife, which had now been placed in a Government measure (the Companies Acts Amendment Bill), was passed without amendment by the House of Lords towards the end of the last session. It was too near to the close of the Session for the Bill to be then introduced in the House of Commons, but it was understood that the Government intended to actively proceed with the measure, and it was hoped that it would be introduced in the House of Commons early in the ensuing session. The Committee were using their best endeavours to procure the insertion of the words "medical practitioner."

The report also stated that the Committee had received further information enabling it to state that both Medical and Dental Companies were still actively pursuing highly objectionable forms of practice.

He moved "That the *interim* report of the Companies Act Amendment Bill Committee be received, entered on the minutes, and adopted."

Mr. VICTOR HORSLEY seconded the motion, which was agreed to.

REPORT OF THE EXECUTIVE COMMITTEE ON DENTAL BUSINESS.

The Report of the business transacted by the Executive Committee on dental business since the last session of the Council was placed before the Council.

It was to the effect that

"(*a*) They approved of the restoration of the names of the undermentioned persons to the Dentists' Register, from which they had been erased in conformity with the provisions of Section 12 of the Dentists Act (1878):—MacMunn, George I., Fay, Tullius W. W.

"(*b*) It was resolved:—'That the further consideration of the cases of Mr. E. H. C. Bailey and Mr. F. W. Bailey be postponed till the return of Mr. Bailey from Australia.'

"(*c*) The Committee considered communications from or in regard to Mr. Charles Samuel Leadbetter, of 61, Great Ducie Street, Manchester, a dentist registered as 'in practice before July 22, 1878.'

"(*d*) The Committee considered the standing order with regard to the procedure in dental penal cases, referred to the Committee in the Resolution passed by the General Council on June 9, 1899.[1]

"It was resolved :—

"'That the standing order as amended by the Dental Committee be approved.'"

Mr. TOMES, in moving that the Report be received and entered on the minutes, said he might remind the Council that the Committee got into more or less of a difficulty in Messrs. Bailey's cases because they accepted as evidence of their having passed their curriculum the fact that they had been admitted to an examination. The Committee subsequently learned that under peculiar circumstances, which he need not then recount, their admission to that examination was not evidence for the curriculum. The Committee, therefore, asked for proof. Messrs. Bailey declared that they had come to the Committee in perfectly good faith, and that they had had some difficulty in getting all the evidence of their curriculum. One of them had now gone over to Australia and requested that the Committee would defer any final settlement of the matter until he returned, when he would present his evidence before the Committee. In the meantime, both of them had voluntarily handed in their certificates of registration.

The resolution that the Report be received and entered on the Minutes was agreed to.

MEDICAL ORDINANCE FOR THE PRACTICE AND SALE OF MEDICINE AND PRACTICE OF DENTISTRY IN SOUTHERN RHODESIA.

The SECRETARY read a communication remitted to the General Council by the Executive Committee in regard to a Medical Ordinance for the practice and sale of medicine and practice of dentistry in Southern Rhodesia.

The letter was headed "Buluwayo, Rhodesia," and signed by ten medical men. It requested that he would lay the annexed Medical Ordinance and their objections thereto before the General Medical Council.

Mr. BRUDENELL CARTER moved that the resolution be forwarded to the Secretary of State for the Colonies with the request that he would give it his consideration.

The resolution was unanimously adopted.

Odontological Society of Great Britain.

THE second meeting of the Session was held on Monday, December 4, Mr. J. STORER BENNETT, the President, occupying the chair.

The minutes of the last meeting having been read and confirmed, Messrs. De Mierre, Douglas Caush, and P. Traer Harris signed the obligation book and were admitted members of the Society.

The HON. TREASURER (Mr. W. H. Woodruff) presented his balance sheet for the year, from which it appeared that the annual subscriptions amounted to £504. The cash account showed receipts £795 and payments £451. The nett surplus amounted to £271.

The LIBRARIAN (Mr. H. Baldwin) having made his report, Mr. J. STORER BENNETT, as Curator, exhibited the half of a mandible of a brindled gnu, presented by Mr. Morton Smale, showing a great dilation of the bone in the malar region.

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[1] See Minutes, vol. xxxvi., p. 98

CASUAL COMMUNICATIONS.

Mr. **ROBBINS** exhibited an apparatus for cooling impressions which he had found of great service—a small, hollow U-shaped fork with two inner prongs. Attached to a tube with a bulb, the apparatus distributed a fine shower of water over the tray, reducing the time during which the composition was in the mouth and reducing the amount of nausea sometimes present.

Mr. **GEO. BRUNTON** exhibited a simple method of getting rid of broken-in pivots by using a small cross-cut fissure bur running up one side of the pivot to the end and carrying it over from one side to the other. He also showed some instruments made of piano-wire designed to get rid of the *débris* when cleaning out nerve canals and from pulp chambers. He also explained the new form of matrix which he described at the Annual Meeting of the Association at Ipswich.

Mr. **MONTAGU HOPSON** illustrated by means of lantern slides three cases of general hypertrophy of the gums in a man and his two children. Early in March of the present year a man aged 43 was admitted into Hampstead Hospital with a suppurating swelling beneath the angle of the jaw on the right side, which was first noticed a few weeks before Christmas. The swelling was opened and much pus evacuated, and some necrosed glands removed. On examining the mouth it was found that the gums were enormously hypertrophied. There was no pain or hæmorrhage, the only inconvenience being inability to speak distinctly. The teeth, which were all present except one, were free from caries, but showed signs of attrition. The man never remembered his gums in any other condition. Subsequently the patient died of sarcoma over the left eye. Mr. Hopson had examined two of the children of the patient and had found unmistakable evidence of a general hypertrophy. Both the man and his children were highly intelligent.

Replying to a discussion, in which several members took part, Mr. Hopson said the patient had an abnormal quantity of hair. Mr. Anderson and Dr. Ware of St. Thomas's Hospital, as well as the local medical man, were all of opinion that the condition of sarcoma was quite distinct from the condition of the gums. The *post-mortem* report showed that there were signs of latent phthisis.

The paper of the evening was by Mr. W. H. Dolamore on "Treatment of Misplaced Teeth by Alveolotomy," which he illustrated with photographs of many cases. He expressed the belief that the operation was a practical one and scientifically sound.

Some discussion followed in which the **PRESIDENT**, Mr. **BADCOCK**, Mr. W. **HERN** and Mr. F. J. **BENNETT** took part.

Mr. **DOLAMORE**, in reply, said that if the operation was to be a surgical and scientific one, it was necessary to fix the tooth absolutely in one position and splint it there. If there was any movement of the tooth there could be no bony union. The whole gist of the operation was to get bony union, and if it was not got the operation was bad from beginning to end.

The **PRESIDENT** having thanked the contributors of communications and papers, adjourned the meeting to January 8, which is to be a special meeting for the purpose of considering a new bye-law.

Reviews and Notices of Books.

BALE'S DENTAL SURGEON'S DAILY DIARY AND APPOINTMENT BOOK FOR 1900. Messrs. Bale, Sons, and Danielsson, Ltd., 83-89, Great Titchfield Street, Oxford Street, W.

This book, which has met with well-deserved success for the past six years, is again before us, and this time in a somewhat altered form, which seems to us to be, on the whole, an improvement. The names of the days are now arranged *across* the page, instead of, as heretofore, from top to bottom, a small column being set apart on the left-hand side of each page to indicate the half-hourly appointments, commencing at 9 a.m. and ending at 5.30 instead of 6 as previously. The book contains the usual calendar, postal information, &c., as well as a great deal of other matter of interest, such as a list of the members of the British Dental Association arranged according to the towns in which they reside, the executives of the Odontological and Odonto-Chirurgical Societies, &c., rendering it useful not only as an appointment book, but as a capital book of reference and information for dentists. The two pages dividing the weeks hitherto devoted to Sunday and memoranda are omitted in the present issue, and to the names of members of societies, hospital staffs, &c., their qualifications and date of diploma are now added; the regulations respecting the Army and Navy are also included. Altogether the publishers are to be congratulated upon the pains they have taken to bring their book up to the highest possible standard, with results which amply justify their efforts.

New Inventions, Drugs, &c.

Beta-Eucaine (Eucaine Hydrochloride β).

The makers claim for this preparation that it has certain advantages over cocaine preparations in minor surgery. As far as has been ascertained by experiment at present, it appears to have made good the claims, namely, that it does not suffer by boiling—a great advantage in antiseptic surgery; it can be kept without the addition of an antiseptic (we all remember the serious consequences that from time to time followed the use of cocaine that had become septic); it is free from toxic effects, but is not so powerful as cocaine. It is therefore preferable to cocaine as an injection, and also to alpha-eucaine, although the latter is more effective as an application.

Annotations.

We are indebted to the kindness of Mr. Booth Pearsall for a letter on the subject of "Dentists and the Telephone," drawing our attention to the fact that the concessions made to our *confrères* in Dublin by the National Telephone Company are proportionately greater than those received by London dentists. "The subscription rate for Dublin," says our correspondent, "was, I understand, £10 a year." He encloses a card, the substance of which we append, showing that the subscription is about to be reduced to £3 10s. He adds that the telephone has not been helpful to Dublin practitioners, owing to the lack of communication between subscribers the call offices and the central exchange.

"Dear Sir,—I beg to advise you that on or after the 1st day of January, 1900, a telephonic connection can be had with the National Telephone Company's Exchange for the sum of £3 10s. per annum, subject to the rules of the Company, which will be fully explained at this office, or will be forwarded to your address. As orders will be taken in rotation, please communicate with me at once if you are desirous of information.—Yours faithfully, C. Fitzsimon, National Telephone Co., Ltd."

Mr. J. G. Turner asks us to make a correction in the report of the meeting of the Odontological Society in our last issue, viz., p. 671, line 30, for "contraction of the cheek" read "traction of the tissues of the cheek."

Our attention naturally turns, in view of the present disturbances in South Africa, to the consideration of the teeth of our soldiers and sailors, and we note with gratification that the offices of the dentist have, in at least one instance, been called into requisition, with the satisfactory result of placing at the disposal of the military authorities the services of several reservists who would otherwise not have been regarded as medically fit. According to a provincial daily contemporary, six out of a number of reservists who had been called up to rejoin the Loyal North Lancashire Regiment were rejected on account of defective teeth, but after visiting a dental surgeon they were able to pass the medical examination, as our contemporary states, "in triumph."

We learn that the Brentford Board of Guardians have decided to advertise for a qualified dentist to attend the schools at a salary of £25 per annum. It appears that there has been for some time a gentleman acting in that capacity gratuitously, but the committee felt that the increase in the work now necessitated so much more attention that they did not feel justified in continuing to accept the services of a dentist without remuneration. It was, we understand, proposed that this gentleman should be offered the post without its being advertised, but on the chairman pointing out that it was he who had introduced the present holder of the office, and that he did not wish it to be thought that he had brought about the appointment with a view to its ultimately becoming a paid one, it was decided to advertise the post.

We have received a letter, too late for insertion, in which our attention is called to the appearance in the lay press of reports of professional meetings. Our correspondent wishes to know whether the practice is usual or desirable. Perhaps some of our readers will like to express their views upon the subject in our columns.

Miscellanea.

Benevolent Fund.

The following new contributions were received during November:—

Subscription.

H. A. Stamper, 6, Hartington Street, Barrow in Furness (per C. J. Cowell, Local Representative)	£0	10	6

Donations.

Midland Counties Branch, British Dental Association, Collection at Newcastle (per David Headridge, Local Representative)	1	9	3
Southern Counties Branch, British Dental Association, Collection on October 28, 1899 (per F. V. Richardson, Local Representative)	1	15	6

Liverpool Dental Hospital and School—Presentation to Mr. R. Edwards (Dean).

The last meeting of the Liverpool District Odontological Society, held at the Medical Institution on Tuesday, November 21, was made the occasion of a very interesting presentation to Mr. R. Edwards, who for twelve years held the office of Dean in the Liverpool Dental Hospital and School. Past and present members of the staff and past students were the principal subscribers; Mr. Joseph A. Woods acted as hon. secretary and treasurer.

Mr. Waite, in making the presentation—which took the form of a very handsome gold watch and chain, and solid silver salver—delivered an able and interesting address, in which he painted Mr. Edwards' good qualities in glowing colours. He referred to experiences dating back to June, 1886, when, amid the anxiety and depression caused by compulsory retirement from practice, and the uncertainty as to whom he might find to take his place, he was, through the intervention of a friend, introduced to Mr. Edwards. He spoke in warm terms of Mr. Edwards' skill and competency in every department of his work, his uprightness and straightforwardness, and his genial and sympathetic disposition. He had never ceased to be thankful for the good Providence which led him into association with Mr. Edwards, who had, with the utmost tact and consideration, done his best to mitigate the inevitable suffering attendant on his (Mr. Waite's) retirement, and had comforted him with the assurance that the interests of patients and friends would not suffer by the change. Mr. Edwards had not been long settled before a vacancy occurred on the staff of the Dental Hospital; he was appointed, and soon afterwards was asked to accept the office of Dean. The chaotic condition of the school at that period, and the want of regular or systematic instruction were obstacles before which Mr. Edwards did not shrink for a moment, and, in fact, in his humble judgment, the day on which Mr. Edwards took the helm was the brightest the Liverpool Dental School had ever seen.

Mr. Waite also referred to the Dean's good offices in the re-construction and re-organisation of the school, and the revision of the relations then existing between it and the charity, and his efforts in the direction of structural enlargement and the alleviation of the financial burden.

There was no need, he said, to describe the condition of the school to-day; outside London there was no dental school superior to it, either in the facilities it offered for practical instruction, or in the success achieved by its students when tested by the examining bodies. This happy result had been brought about mainly by the indefatigable, faithful and self-sacrificing labours of Mr. Edwards.

Mr. Edwards, in returning thanks, said he regretted to have to confess that his power of speech was not equal to the occasion. He was at a loss to know whether it was a sense of his own unworthiness, or of the goodness of those whom he was addressing which was uppermost in his mind. He spoke of the warm manner in which he had been at all times supported by his colleagues, and he felt it was but bare justice to acknowledge that whatever had been accomplished was the result of the united efforts of the whole staff, each man doing his share.

One of the most pleasant reminiscences of his term of office was the amiable and cordial relationship which, almost without exception, existed between the students and himself. Not a few of those students were now settled in different parts of the country, conducting honourable practices with advantage to themselves and credit to their School, and he heartily wished them all the success they merited. In conclusion, he said, "Once more I tender to all those who have contributed to this testimonial my heartfelt thanks, and assure them that their valuable and beautiful gifts will serve to constantly remind me of my many kind friends, and of the scenes of pleasure I have enjoyed among them."

Dental Hospital of London—Annual Dinner.

The annual dinner of the staff and past and present students of the hospital was held at the Hôtel Métropole on the evening of Saturday, December 2. Mr. Alfred Coleman, F.R.C.S., L.D.S., presided over an attendance numbering 160.

The toast of "The Queen" was received with great applause, and the National Anthem was heartily joined in by all present. The Chairman alluded to the great events of Her Majesty's reign, and produced the truncheon which he bore with pride as a special constable at the time of the Chartist riots. He regretted the present war in South Africa, but considered that we British were entitled to receive, at the hands of other nations, the same measure of justice that we accorded to foreigners in our country.

In proposing "The Past and Present Students," the Chairman referred to the establishment of the London Dental Hospital in Soho Square in 1858, and spoke of the exertions and sacrifices made by the founders of the Institution, how they had—although engaged in busy practices—given their time, their knowledge, and their money to promote the welfare of the School. He had recently visited the new building, and was glad to see that the students were about to enjoy better times and greater advantages, both to themselves and to their patients.

The toast was responded to by Messrs. W. B. Bacon and J. T. Carter. The former said that he remembered the old hospital in Soho Square, and he remembered also the helpful kindness shown by Mr. Coleman to students. The new building would be one of the finest for the purpose in the world. He felt proud to think of the high position now occupied by many of the old students in connection with the various dental hospitals in the kingdom.

Mr. Carter, in a graceful little speech on behalf of present students, expressed the thanks that the students owed to the dean and staff of the hospital for the interest they had always taken in them, and said that this was a debt which could never be repaid. The bond of sympathy and confidence, he was sure, was as strong as ever between staff and students. The best way for students to show their appreciation was to do their best to follow the examples their teachers set them in their great careers.

Mr. F. A. Bevan proposed "The Hospital and School." He said that shortly there would be more elbow-room for those working in the hospital, and the new building would be found to possess every modern convenience. Nevertheless, there had been splendid work done in the present building; 63,298 cases had been treated during the past year, which was a number considerably in excess of that of the previous year. He drew attention to the necessity of dental treatment for our soldiers and sailors, who, he said, could not fight if they could not eat, and could not eat, without sound teeth, such rations as they were compelled to put up with in a campaign. He appealed to the past students to endeavour to enlist the sympathy and support of their friends in the country for the good of the hospital. A large sum was needed, and must be got together, and he asked both past and present students to do their best for the school. He alluded to the proof that Dr. Walker had given of his interest in the Institution by giving an entrance scholarship for £20, for chemistry and dental science.

Dr. Walker, in response, said that the new building had got as far as the fourth floor, and they looked for its completion in October. Funds were urgently needed to carry on the good work of the hospital.

Mr. Tomes, in proposing "The Visitors," spoke of the value they had always attached to the assistance of laymen as members of the Hospital Committee, and their presence at the annual dinner was also greatly esteemed; the undertaking they were engaged in called for assistance from without the profession as well as from within, and they were most earnestly grateful to their lay friends, especially the Chairman of the Committee, Mr. Allan Stoneham, and their trustee, Mr. Bevan. They welcomed the presence of Dr. Montague Murray, the Dean of Charing Cross Hospital, and though he was, in this instance, a visitor, there was such a close connection between the two hospitals that Dr. Murray was really one of themselves.

Dr. Montague Murray, replying for the visitors, said that he was proud to acknowledge the cordial relations which existed between the two institutions. The tie which bound them together was one of mutual self-interest, and it was being made firmer by the extension of the curriculum, and perhaps their own better appreciation. He referred to the new London University, and hoped that when its arrangements were complete the claims of the dental profession would be regarded.

Mr. J. Smith Turner, in giving the toast of "The Chairman," spoke of the task that the College of Surgeons had had to establish the diploma in dentistry. Not only had they been obliged to go before Parliament for an extension of their powers, but in addition they had expended the sum of £800. He referred to the action of the Middlesex Hospital in nobly coming to the aid of the dental profession by providing a place of study for students, an action which was censured by many in the medical profession. To-day, however, the best hospitals in London did not consider it beneath their dignity to receive dental students. If the dental degree was worth having it was worth working for, and worth paying for. He referred to the Chairman as a "boy of the old brigade," whom they were all proud of. The Chairman replied briefly.

A capital programme of music, under the direction of Mr. Herbert Schartau, greatly assisted the enjoyment of the evening, and a sum of £15 was collected during the recitation of "The Absent-Minded Beggar" by Mr. Chambers.

National Dental Hospital—Annual Dinner.

The annual dinner of the staff and past and present students of this institution was held at the Holborn Restaurant on the evening of November 24, Mr. J. Bland-Sutton occupying the chair. There were also present Mr. Sidney Spokes (Dean), Messrs. Morton Smale, J. Howard Mummery, J. Smith Turner, F. Canton, &c. The toast of the "National Dental Hospital and College" was proposed by the Chairman. He spoke of the three-fold object of the institution, namely, the relief of the suffering poor, the education of the dental profession, and the advancement and progress of the science of dentistry. He alluded in sympathetic terms to the death of the Dowager Lady Howard de Walden, to whose munificence they were indebted for the building in Great Portland Street. Mr. Sidney Spokes responded. Among other toasts was that of the "Past and Present Students," proposed by Mr. Smith Turner, and responded to by Mr. Clifford Wing and Mr. P. G. Pavitt.

The Bowman MacLeod Memorial Fund.

We are asked to state that the list is open till the 31st inst.; intending subscribers are requested to kindly send in their donations before that date to either of the two Treasurers, Mr. Malcolm Macgregor, 20, Queen Street, Edinburgh; or Mr. John S. Amoore, 10, Charlotte Square, Edinburgh.

The final list will appear in the January number of this Journal.

	£	s.	d.
Mr. Storer Bennett[1]	2	2	0
Amount already subscribed ...	150	15	6
Mr. J. Graham Munro ...	5	5	0
,, J. Kyle Mackintosh ...	2	2	0
,, George B. Wilson ...	2	2	0
,, John A. Biggs	2	2	0
,, Gordon Reid Shiach ...	2	2	0
,, Thomas Wallace... ...	2	2	0
,, W. F. Martin	2	2	0
Rev. Robert Blair, D.D. ...	2	2	0
Mr. David Hepburn (Edinburgh)	1	1	0
,, Thomas Dykes	1	1	0
,, Laurence Read	1	1	0
,, David Marshall	1	1	0
Mr. D. Robertson Campbell ...	1	1	0
,, George G. Campion ...	1	1	0
,, J. M'Laren Mason ...	1	1	0
,, J. Howard Mummery ...	1	1	0
,, James Aitchison	1	1	0
,, James Cooper	1	1	0
Dr. F. J. Turnbull	1	1	0
Mr. Thomas Bird	1	1	0
,, James Robertson	1	1	0
,, William Finlay	1	0	0
,, Andrew Isles	1	0	0
,, George Brewis	0	10	6
	£186	18	0

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[1] The Treasurers much regret that Mr. Bennett's name was accidentally omitted from the last list.

Books and Publications Received.

Transactions of the Medical Society, vol. xxii., 1899.

Letter received from:

" X. Y. Z." (too late for insertion).

Appointment.

C. E. Carter, L.D.S.Eng., to be Dental Surgeon to the Holborn Schools, Mitcham.

Note.—ANONYMOUS Letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 26, Wimpole Street, Cavendish Square, W.

Subscriptions to the Treasurer, 40, Leicester Square.

Subscriptions to the Benevolent Fund to the Treasurer, A. J. Woodhouse, Esq., 1, Hanover Square, W.

All contributions intended for publication in the Journal must be written on one side of the paper only. The latest date for receiving contributions for the current number is the 5th of the month.

Educational Supplement.

EDUCATIONAL SUPPLEMENT.

THE steps necessary for anyone wishing to qualify as a dental surgeon may be divided into:

(*a*) The Preliminary Examination in General Education.

(*b*) Professional Education (must extend over four years subsequent to registration).

(*c*) Examination.

(*a*) The Preliminary Examination.

The General Medical Council require, previous to registration, that th student shall have passed an examination embracing the following subjects:—

"(*a*) English Language, including Grammar and Composition.

⁂ Marks not exceeding 5 per cent. of the total marks obtainable in this section of the examination may be assigned to candidates who show a competent knowledge of Shorthand.

"(*b*) Latin, including Grammar, translation from specified authors, and Translation of easy passages not taken from such authors.

"(*c*) Mathematics, comprising (*a*) Arithmetic (*b*) Algebra, as far as simple equations, inclusive; (*c*) Geometry, the subject matter of Euclid, Books I., II., and III., with easy deductions.

"(*d*) One of the following optional subjects:—
"(α) Greek, (β) French, (γ) German, (δ) Italian, (ε) any other Modern Language, (ζ) Logic."[1]

The General Medical Council do not accept any Certificate of pass in Preliminary Examination in General Education, unless the whole of the subjects included in the Preliminary Examination required by the Council for Registration of Students of Medicine have been passed at the same time.

A list of examining bodies whose examination in General Education are recognised by the General Medical Council can be obtained from the offices of the Council, 299, Oxford Street, W. Those most to be recommended are: —The Matriculation of the University of London, the Oxford and Cambridge

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[1] Logic will be omitted from the list of optional subjects on and after January 1, 1899

Local Examinations, and the Special Examination conducted by the College of Preceptors for Medical Students.

The matriculation, which is held in January and June, is on all grounds the best—it can be passed when a youth is sixteen or seventeen without much difficulty, and possesses these advantages:—It ensures the boy receiving a good education, it opens the doors to all the professions, and if at any time during his pupilage or hospital career the student should forsake dentistry for any other branch of the healing art, it is open to him, without returning to school books and passing another preliminary examination.

(*b*) Professional Education.

The Professional Education consists of instruction in the Principles of General Surgery and Medicine, as well as in Dentistry, Mechanical and Surgical. The curricula required by the different examining bodies are referred to on another page, and it will be seen that they only differ from one another in slight details.

This part of the education should commence by an apprenticeship to a registered dentist. The instruction in Mechanical Dentistry can now be obtained at some of the Dental Schools. The different examining bodies require this part of the education to extend over three years. It is impossible to over-rate the mechanical training, and three years is not too long to spend in a workshop to learn and master the many minutiæ of the mechanical art, without a thorough familiarity with which it is impossible to be a good dentist. Immediately the mechanical instruction is commenced the youth should register as a dental student at the offices of the General Medical Council, 299, Oxford Street, W.

In the case of those who commenccd their professional education by apprenticeship to dentists entitled to be registered or by attendance upon professional lectures before July 22, 1878, production of a certificate of a preliminary examination is not necessary. Much trouble often arises from neglect to register. All that is necessary is to apply for a registration form and transmit it properly filled in with the pass certificate of the preliminary examination to the Council's offices.

The student is advised to take this part of the curriculum in a large town where institutions exist recognised by the College for teaching Chemistry and Physics, because these subjects may be learned before the student enters at a hospital. Such a course materially lightens the hospital curriculum. When this is inconvenient they can be taken at a general hospital.

He should pass his first professional examination in Chemistry and Physics (which is Part I. of the first examination for the double qualification) as soon as possible, and it is desirable that he should do so before entering at the hospitals.

At the expiration of the three years' apprenticeship the hospital career should commence by simultaneous entrance at a dental and general hospital. The candidate should now register as a medical student, not necessarily to take a medical or surgical qualification, but in order that he may be able to do so at some future time should he wish. The work which would be done at the general hospital for the dental qualification, and which is largely the same as that required for the general qualification, need not then be repeated, but the whole of the time so spent allowed to count as part of the medical curriculum.

At the expiration of six months the student may pass the second professional examination in dental mechanics and dental metallurgy.

After two years has elapsed he may pass the third or final examination in anatomy, physiology, surgery, and pathology, and in dental anatomy and physiology, and dental surgery and pathology.

Six months must elapse between the dates of the second and third examination.

The hospital years should be spent in real hard work in mastering every detail of the operative department. The student should seek advice from his teachers, and avail himself of every opportunity of learning from the large experience of the members of the hospital staff. At the general hospital the time should be spent mainly in the dissecting-room, the physiological laboratory, and the out-patient department, in which places the most practical part of the medical education is obtained. It is advisable that he should dissect a head and neck, thorax, and abdomen, whilst attending the dissecting-room. The out-patient room is not sufficiently often visited by the general student, and the attendance of the purely dental student is very often *nil!* Yet it is here that he must obtain the only knowledge in practical general surgery he will have the opportunity to learn.

(*c*) The Examination.

There are four examining bodies which grant diplomas in Dental Surgery.

The Royal College of Surgeons of England grants a diploma in Dental Surgery under the following regulations, which apply to all candidates who have registered as dental students after January 1, 1897. Candidates are required to pass three examinations: the Preliminary Science Examination, the First Professional Examination, and the Second Professional Examination.

I.—Preliminary Science Examination. Before admission to this examination the candidate must produce a certificate of having received instruction (which may be taken prior to the date of registration as a dental student) at a recognised institution in Chemistry, Physics, and Practical Chemistry.[1] The examination consists of these subjects, and is identical with Part I. of the First Examination of the Examining Board in England.

II.—The First Professional Examination. The candidate must produce the following certificates:—(1) Of having been engaged during a period of not less than three years in acquiring a practical familiarity with the details of Mechanical Dentistry, under the instruction (which may be taken prior to registration as a dental student) of a competent practitioner or under the direction of the Superintendent of the Mechanical department of a recognised dental hospital. In the case of qualified surgeons evidence of a period not less than two, instead of three, years of such instruction will be sufficient. (2) Of registration as a dental student by the General Medical Council. (3) Of having attended at a recognised dental hospital and school (*a*) a course of lectures on Dental Metallurgy; (*b*) a course of Practical Dental Metallurgy; (*c*) a course of lectures on Dental Mechanics; and (*d*) a course of Practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns. Candidates may present themselves for the First Professional Examination after the completion of six months' attendance at a recognised dental hospital and school. The examination consists of Mechanical Dentistry and Dental Metallurgy; the examination in Dental Metallurgy will be by written paper.

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[1] A list of institutions recognised for instruction in Chemistry, Physics, and Practical Chemistry can be obtained on application.

III.—The Second Professional Examination. The candidate must produce the following certificates: (1) Of having been engaged during four years in the acquirement of professional knowledge subsequently to the date of registration as a dental student. (2) Of having attended at a recognised dental hospital and school (*a*) a course of Dental Anatomy and Physiology; (*b*) a separate course of Dental Histology, including the preparation of microscopical sections; (*c*) a course of Dental Surgery; (*d*) a separate course of Practical Dental Surgery; and (*e*) a course of not less than five lectures on the Surgery of the Mouth, which lectures may be given at a dental hospital or at a recognised medical school; in the latter case they may form part of the course of lectures on Surgery. (3) Of having attended at a recognised dental hospital or in the dental department of a recognised general hospital the practice of Dental Surgery during two years. (4) Of having attended at a recognised medical school (*a*) a course of lectures on Anatomy; (*b*) a course of lectures on Physiology; (*c*) a separate Practical Course of Physiology; (*d*) a course of lectures on Surgery; and (*e*) a course of lectures on Medicine. (5) Of having performed Dissections at a recognised medical school during not less than twelve months. (6) Of having attended at a recognised hospital the practice of Surgery and Clinical Lectures on Surgery during two winter sessions. (7) Of being 21 years of age.

The certificates of professional study will be required to show that students have attended the courses of professional study to the satisfaction of their teachers. Candidates may present themselves for the Second Professional Examination after the completion of four years' professional study from the date of registration as a dental student, and after the lapse of not less than six months from the date of passing the First Professional Examination. The Second Professional Examination consists of General Anatomy and Physiology, General Surgery and Pathology, Dental Anatomy and Physiology, Dental Pathology and Surgery, and Practical Dental Surgery. The written examination comprises General Anatomy and Physiology, General Pathology and Surgery, Dental Anatomy and Physiology, and Dental Pathology and Surgery. At the Practical Examination candidates may be examined (*a*) on the treatment of Dental Caries, and may be required to prepare and fill cavities, or to do any other operation in Dental Surgery (candidates must provide their own instruments); (*b*) on the Mechanical and Surgical Treatment of the various Irregularities of Children's Teeth. There is also an oral Examination. Exemption from the Preliminary Science Examination is granted to candidates who have passed an Examination for a degree in Medicine at a University in the United Kingdom, in India, or in a British colony. Exemption from Examination in Anatomy and Physiology is granted to candidates who have passed the second Examinations of the Examining Board in England or the corresponding Examination of the Royal College of

Surgeons of Edinburgh, the Royal College of Surgeons in Ireland, or the Faculty of Physicians and Surgeons of Glasgow, or of any University in the United Kingdom. Exemption from Examination in General Surgery and Pathology is granted to candidates who have passed the Examination in Surgery of the Examining Board in England or the corresponding Examination of the Colleges and Universities above mentioned. The fee for the diploma is 20 guineas, and is payable as follows :—Preliminary Science Examination, 3 guineas ; First Professional Examination, 2 guineas ; Second Professional Examination, 5 guineas ; the balance to be paid on the completion of the Examinations. The Preliminary Science Examination is held in January, March or April, July, and October in each year. The first and second Professional Examinations are held in May and November in each year. Candidates must give twenty-one clear days' notice of their intention to present themselves for examination. All applications with reference to the Examination should be addressed Mr. F. G. Hallett, The Examination Hall, Victoria Embankment, London, W.C.

Royal College of Surgeons, Edinburgh.—For the licence in Dental Surgery all candidates must pass a preliminary examination in general knowledge and have their names inscribed in the Register of Dental Students of the General Medical Council. A copy of regulations, giving a list of preliminary examinations recognised for obtaining this licence, as well as of the subjects of the professional examinations, may be obtained from Mr. James Robertson, Clerk to the Royal College of Surgeons, at 48, George Square, Edinburgh. Students who commenced their professional education by apprenticeship or attendance on lectures before July 22, 1878, are exempt from the preliminary examinations. Candidates must produce certificates of having, subsequently to the date of registration, been engaged for four years in professional studies, and of three years' instruction in Mechanical Dentistry from a registered dental practitioner, or in the Mechanical Department of a recognised Dental Hospital where the arrangements are satisfactory to the College, except in the case of previously registered medical practitioners, when two years will be considered sufficient. Candidates who have commenced their studies *after* Oct. 1, 1890, must have attended the following curriculum : Anatomy, one course of six months ; Practical Anatomy with demonstrations, twelve months ; Chemistry, including Metallurgy, one course of six months ; Practical Chemistry, one course of three months ; Physiology, one course of six months ; Materia Medica, one course of three months ; Surgery, one course of six months ; Medicine, one course of six months ; and attendance on the practice of a recognised general hospital, with Clinical Instruction, twelve months. (Candidates who commenced study in accordance with the regulations in force before July, 1895, shall not be required to attend more than six months' hospital work.) These courses must have been attended at a University, or in an established school of medicine, or in a provincial school specially recognised by the College as qualifying for the diploma in Surgery. In addition to these courses candidates will be required to have attended in a recognised dental hospital or with teachers recognised by the College, the following special courses of lectures and instruction : Dental Anatomy and Physiology (Human and Comparative), not less than twenty-four lectures ; Dental Surgery and Pathology, not less than twenty lectures ; Dental Mechanics, not less than twelve lectures ; two years' attendance at a dental hospital or the dental department of a general hospital recognised by the College. Certificates of attendance on such of these courses of the new curriculum as may be respectively required will entitle candidates to appear either for the first dental examination or for the first and second examinations for the triple qualification, as they may select, and subject to the existing regulations for each qualification. Candidates who have passed the first and second examination for the triple qualification will be exempt from the first dental examination, and will have the advantage of being admissible either to the Final Dental Examination or to the subsequent Examination for the Triple Qualification, or to both. But the first Dental Examination will not be held as equivalent to the first and second Triple Examinations, and will admit to the Final Dental Examination only. Candidates who are Licentiates of this College, or who may be registered medical practitioners, will be required to produce certificates of attendance on the special subjects only, and will be examined in these only for the Dental diploma. First Professional Examination: The Candidate must have attended the courses on Anatomy, Chemistry, and Physiology. The examination embraces Anatomy, Chemistry, and Physiology. The fee is £4 4s. Second Examination: The candidates must have attended the remaining courses of the curriculum, must be twenty-one years of age, and must pay a fee of £6 6s. The examination embraces Surgery, Medicine, Therapeutics, and the special subjects of Dental Anatomy and Physiology, Dental Surgery and Pathology, and Dental Mechanics. Unsuccessful candidates will be repaid £2 2s. in the First and £3 3s. in the Second Examinations. Candidates who claim exemption from the First Dental Examination, on the ground of having passed the First and Second Triple Qualification Examinations, will, before being admitted to the Second Dental Examination, be required to pay the total fee of £10 10s., payable for the Dental diploma, of which £3 3s. will be returned in case of rejection. The fee payable by candidates who begin study after October 1, 1896, will be £15 15s.

Full particulars can be obtained of the Clerk to the College, 48, George Square, Edinburgh.

Faculty of Physicians and Surgeons of Glasgow.—The registrations as to certificates, curriculum, number, and subjects of examinations, fees, &c., are in effect similar to those of the Royal College of Surgeons of Edinburgh. Special provision is made for candidates who intend to qualify both in Medicine and in Dentistry. All communications should be addressed to the Secretary to the College, Faculty Hall, 242, St. Vincent Street, Glasgow.

Royal College of Surgeons in Ireland.—All information concerning the licence in Dentistry may be obtained from the Registrar of the College, who will receive the applications of candidates for permission to be examined. The bank receipt for fees, together with all certificates, &c., are to be lodged with him at least seven days prior to the day fixed for the commencement of the examination. The Priminary Dental Examinations commence on the second Monday in the months of February, May, and November. The Final Dental Examinations commence on the Thursdays immediately following the Primary Dental Examinations. Candidates are required to pass three examinations—viz., Preliminary (in General Education), Primary Dental, and Final Dental.

Preliminary Examination—All examinations in general education recognised by the General Medical Council are accepted by the College. Preliminary

Examinations are held conjointly by the Royal Colleges of Physicians and Surgeons on the third Wednesdays in March and September.

Primary Dental Examination—Fee £10 10s.; for re-examintion, if rejected, £5 5s. Every candidate[1] is required, before admission to the Primary Dental Examination, to produce evidence—(1) of having passed a recognised preliminary examination and of having been registered as a dental or medical student by the General Medical Council; (2) of having, subsequently to registration as a dental or medical student, attended at a recognised medical school the following courses: Lectures on Practical Anatomy, including Dental Anatomy, six months; Demonstrations and Dissections, two courses of six months each (candidates must have dissected the head and neck at least three times); Lectures on Chemistry, six months; Lectures on Physiology, including Dental Physiology, six months; Practical Chemistry, including Metallurgy, three months; one course, three months, Lectures on *Materia Medica;* one course, six months, Lectures on Surgery; one course, six months, Lectures on Medicine; (3) of having attended Clinical Instruction at a recognised general hospital for one year. The subjects of this examination are: (1) Physics;[2] (2) Chemistry, including Metallurgy; (3) Anatomy; (4) Physiology and Histology: and (5) Surgery.

Final Examination—Candidates holding L.R.C.S.I., or students who have passed Primary Dental or Third Professional Examination of the College, £10 10s; re-examination, £5 5s. Fees for Final Examination of all other candidates, £26 5s.; re-examination, £10 10s. Extra fee for Special Examination, £5 5s. Candidates must produce evidence of having passed the Primary Dental Examination of this College, or the Third Professional Examination under the Conjoint Board with the Royal College of Physicians in Ireland, or with the Apothecaries' Hall, or an equivalent examination recognised by the College, and are required to produce certificates of having attended:—(1) the following courses of lectures recognised by the College—Dental Surgery and Pathology (two courses), Dental Mechanics (two courses); (2) for two years the practice of a dental hospital recognised by the College, or of the dental department of a general hospital so recognised; (3) of having been engaged during four years in professional studies; and (4) of having received three years' instruction in Mechanical Dentistry from a registered dentist.[3] Candidates holding a diploma in Surgery shall be admissible to the Final Dental

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[1] Candidates educated in England or Scotland are admitted to the Primary Dental Examination on the production of the certificates that would be necessary for both Primary and Final Examinations in their own countries.

[2] Candidates who have passed in Chemistry and Physics at a First Professional Examination under the Conjoint Board with the Royal College of Physicians in Ireland, or with the Apothecaries' Hall, or an equivalent examination, recognised by the College, are exempted from examination in the subjects at the Primary Dental Examination.

[3] The three years' instruction in Mechanical Dentistry, or any part of them, may be taken by the Dental Student either before or after his registration as a student; but no year of such instruction in Mechanical Dentistry shall be counted as one of the four years of professional study unless taken after registration. One year's *bonâ fide* instruction from a registered dentist after being registered as a Dental Student may be counted as one of the four years of professional study.

Examination on producing certificates of having attended—(1) one course of Lectures on Dental Surgery and Pathology; (2) one course of Lectures on Dental Mechanics; (3) for one year the practice of a Dental Hospital recognised by the College or of the Dental Department of a General Hospital so recognised, where such attendance has been subsequent to the date of diploma (this remission [3] has been made on the understanding that the surgeon devotes his whole time to dental work); and (4) of having been engaged during a period of not less than two years in acquiring a practical familiarity with the details of Mechanical Dentistry under the instruction of a registered dentist. The following are the subjects of examination: Dental Surgery, Theoretical (including Dental Pathology), Clinical and Operative; Dental Mechanics, Theoretical, Clinical, and Practical (including the Metallurgy of the workshop). Candidates must pass in all the subjects at the same time. Examinations for the Licence in Dentistry *sine curriculo:* The Council has power to admit to examination, *sine curriculo*, candidates whose names are on the Dental Register, published under the direction of the General Medical Council. Further information can be obtained from the Registrar of the College.

EDUCATIONAL CENTRES.

Instruction in dental surgery can be obtained now not only in London but also at many of the large provincial centres. The following are brief particulars of the various hospitals and schools.

LONDON.

The Dental Hospital of London and London School of Dental Surgery.

The Dental Hospital, founded 1858, was opened for the reception of patients at 32, Soho Square, and in March, 1874, was removed to more commodious premises at Leicester Square, which it now occupies. The rapid growth of the school made enlargement of the premises a necessity, and, thanks to the munificence of Sir Edwin Saunders, another wing was added to the building in 1883, giving increased accommodation, and making the Hospital the largest for dental students. The most complete arrangements are provided for the education of students preparing for the L.D.S. diploma of the Royal College of Surgeons.

The hospital is open every afternoon except Saturday, in addition to the morning, under the supervision of a special staff and house surgeons, this extension of the hours of work having been found necessary to afford the additional opportunities for practical work and teaching which the rapid growth of the institution demanded.

The officers for the day give practical teaching at the chair side, enabling the students to acquire experience in the treatment of the many minor difficulties of their profession.

Four demonstrators are appointed, whose duty it is to teach the students, and on their respective days to assist the new students in their work. During each session they hold classes and give instruction in Operative Dental Surgery.

A demonstration is given in each week by a member of the staff for second year's students. The whole of the staff demonstrate and give lectures on various modes of practice, and any form of work in which they are especially skilled.

The mechanical laboratory is under the care and superintendence of the lecturer on Dental Mechanics, and a skilled mechanic. Students are required to take models, manufacture, and fit in the mouth dentures for those patients allotted to them by members of the staff, the actual manufacture being under the superintendence of the mechanical assistant, while the adapting to the mouth is supervised by members of the staff.

It is intended, in this manner, to supply a portion of the student's education heretofore unprovided for, and to more perfectly equip him for the exigencies of dental practice. It enables him to be in a better position to meet the requirements of the College of Surgeons of England with regard to Mechanical Dentistry, in which subject the Board of Examiners for the L.D.S. demand a practical examination from candidates for that diploma.

The medical tutor attends and helps the students in preparing for their examination for four months before each examination.

The Saunders and Walker Scholarships, value £20 each, are awarded annually.

Messrs. C. Ash & Sons give a prize of the value of five guineas each year. Prizes are awarded by the lecturers, and a special one is presented to the best operator for the year.

The eight house surgeoncies are valuable additions to the prizes, and are filled by students of the hospital holding the L.D.S.

Fee for two years' hospital practice required by the curriculum, including lectures, £50 in one payment on entry, or 50 guineas in two yearly instalments. The curriculum requires two years to be passed at a general hospital. The fee for this is about £55. *Both hospitals can be attended simultaneously.*

The fee for three years' tuition in Mechanical Dentistry is 150 guineas.

The Educational Museum is now in working order, and is of service to the students in preparing for the Dental Examination.

The Calendar may be obtained on application to the Dean, who attends at the hospital on Wednesday mornings from 10.30 till 12 o'clock throughout the year.

MORTON SMALE,
Dean.

The National Dental Hospital and College.

(Founded 1861.)

GREAT PORTLAND STREET.

The present Hospital has only been recently erected, and the accommodation and fittings are in complete accord with the latest requirements for efficient teaching.

An Entrance Exhibition of the value of £15 is open for competition at the commencement of each Summer and Winter Session, after an Examination in the following subjects:—

Physiology.—The Functions of Respiration, Circulation, and Digestion.

Osteology.—Bones of the Head.

Chemistry.—The Non-Metals and their Compounds.

Dental Mechanics.—Theoretical and Practical.

All New Students pass through a preliminary course under the care of a Demonstrator.

The Members of the Staff, beside teaching at the Chair-side, give Special Demonstrations.

The Mechanical Laboratory is fully equipped and under the supervision of a competent teacher. Both in Practical Mechanics and in the other subjects every opportuity is afforded students to comply with the requirements of the Royal College of Surgeons.

Coaching classes are held by the Tutors previous to each Examination.

Guy's Hospital Dental School.

This school is in connection with Guy's Hospital.

An Open Entrance Scholarship in Arts, of the value of £30, is offered for competition annually in the month of September. All particulars relating to the examination may be obtained upon application to the Dean.

Three prizes are awarded annually.—First Year's Students' Prize, £10; Second Year's Students' Prize, £15; Second Year's Students' Prize (Practica Dentistry), £10.

Instruction is given to Students in making dentures, regulation plates, and mechanical appliances for the treatment of dental irregularties and oral deformities. Pupils for the Mechanical Apprenticeship are not accepted. The Mechanical Laboratory is under the care of a skilled mechanic.

Preparation Classes.—Before each examination for the diploma of L.D.S., Classes and Demonstrations are given by the Demonstrators.

Continuous Instruction is afforded by means of a separate morning and afternoon Staff of Dental Officers, who give Clinical Demonstrations.

The following appointments are allotted to Dental Students according to merit: Three Dental House-Surgeons, two Assistant Dental House-Surgeons, one Assistant Demonstrator of Dental Microscopy, six Demonstrators in the Conservation Room.

Fees.—The Fees for the two years' Hospital Practice required by the Royal College of Surgeons for the L.D.S., including Lectures, is £50. The Fee for instruction in general subjects in Guy's Hospital Medical School is £60, with a reduction of 12 guineas in the case of those Students who have obtained certificates of instruction in Chemistry, Practical Chemistry, and Materia Medica. No arrangements are made for short periods of Instruction or separate Courses of Lectures.

Further particulars, with prospectus, may be obtained from the Dean.

Dr. LAURISTON SHAW, Guy's Hospital, S.E.

GENERAL MEDICAL SCHOOLS.

Candidates should apply to the Dean of the Medical School at which they intend to enter, for a calendar. At the Middlesex, Charing Cross and Westminster Schools, and King's College, the times of Lectures are specially arranged to suit Dental Students.

ST. BARTHOLOMEW'S HOSPITAL, SMITHFIELD, E.C.

Fee for General Subjects for Students of Dental Surgery :—First Winter, 31½ guineas ; First Summer, 31½ guineas ; or a single payment of 63 guineas.

JAMES CALVERT, *Warden.*

CHARING CROSS HOSPITAL.

The Composition Fee for Dental Students is 54 guineas, or 60 guineas payable in two instalments of 30 guineas each. A reduction is made in the case of Students who produce Certificates on joining the School of previous attendance on Chemistry and Practical Chemistry. There is an Entrance Scholarship of £31 10s. open to Dental Students only. For further particulars apply to H. MONTAGUE MURRAY, M.D., *Dean.*

ST. GEORGE'S HOSPITAL, HYDE PARK CORNER, S.W.

Fee for General Subjects required for the Diploma in Dental Surgery, exclusive of Practical Chemistry, £50 ; or payable in two instalments :—First year, £30 ; second year, £25.

ISAMBARD OWEN, *Dean.*

KING'S COLLEGE, STRAND, W.C.

The tabulated list of Lectures is so arranged that Dental Students, who are taking out their general work at King's College, can easily attend the Lectures at the Dental Hospital of London.

For particulars of the Composition Fee for Dental Students, application should be made to

PROF. ALFRED W. HUGHES, F.R.C.S., *Dean of the Medical Faculty.*

LONDON HOSPITAL, MILE END, E.

Composite Fee for Dental Students.- Hospital Practice and Lectures, £42.

MUNRO SCOTT, *Warden.*

MIDDLESEX HOSPITAL, BERNERS STREET, W.

The Composition Fee for Dental Students is 54 guineas in one sum on entrance, or by instalments of 40 guineas on entrance and 20 guineas at the beginning of the second Winter Session. No deduction can be made from composition fees, except for chemistry £6 6s.

W. PASTEUR, *Dean.*

ST. THOMAS'S HOSPITAL, ALBERT EMBANKMENT, S.E.

The Fee for attendance on the *general* subjects required of Students in Dental Surgery, is for the two years, £65, or by instalments, £55 for the first year, and £15 for the second year. If certificates for *Dental* practice are also required, the special fee for that subject has to be paid, *i e.*:—

Three months	£5 5s.
Six „	10 10s.
Twelve „	15 15s.

UNIVERSITY COLLEGE, GOWER STREET, W.C.

The Fee for Subjects required at a General Hospital by the Dental Curriculum is 65 guineas, or exclusive of Chemistry, Practical Chemistry Physics and Materia Medica, 50 guineas.

PROFESSOR H. R. SPENCER, M.D., *Dean.*

WESTMINSTER HOSPITAL, BROAD SANCTUARY, S.W.

The Fees for the General Surgical Practice and Lectures required for the Dental Diploma of the Royal College of Surgeons may be paid in one of two ways, viz.:—(1) In one payment on entrance, 50 guineas. (2) In two payments of £27 10s. to be made respectively at the commencement of each academic year. These payments include the Library Fee, and Membership of the Club's Union for two years.

A Scholarship, value £20, is offered annually for competition to Dental Students in October. The Lectures are arranged to suit the convenience of Dental Students taking part of their course at the Dental Hospital. Particulars in Prospectus from—

A. H. TUBBY, M.S., *Dean*

PROVINCIAL.

BIRMINGHAM.

Birmingham Dental Hospital.

71, NEWHALL STREET.

The Dental Hospital was founded in 1858, and the Dental School was formed in conjunction with the Queen's College in 1880.

The Dental Hospital, having an annual attendance of upwards of ten thousand patients, affords every advantage for Students about to enter the profession to acquire a thorough practical knowledge as required by the Examining Board of the Royal College of Surgeons.

The system of teaching is such that each Student is required to learn and to satisfactorily perform operations in the various forms of filling, in regulations, extractions with and without anæsthetics, and also in crown and bridge work, &c.

The new Mechanical Department is now arranged, so that Students may acquire the necessary skill in the making and fitting of dentures. All new Students go through a systematic course of instruction with one of the Demonstrators before commencing work in the Extracting and Conservancy Rooms.

The Members of the Staff give chair-side instruction daily.

Examinations are held annually, and the following Prizes are offered for competition. Efficiency must be shown in the written, oral and practical examinations.

General Work...	Certificates of Merit.
Anæsthetics	The "C. Green" Memorial Silver Medal.
Essay on a given subject	C. Ash & Sons' Prize.
Regulation Cases (best series) ...	A Prize.

Fees—twelve guineas; after January 1, 1900, twenty guineas.

A Prospectus containing full information will be forwarded on application to the Dean, who attends the Hospital every Tuesday morning.

FRED. W. RICHARDS, *Dean*

The various special Dental Lectures and also the entire course of Instruction in General Subjects is provided at Mason College in conjunction with the General, Queen's and Dental Hospitals.

The College possesses a well-equipped Dental Museum and Laboratory. An Entrance Scholarship of £15, Medals, and Certificates in the Classes are offered annually. There are special courses on Surgical Diseases of the Mouth, and on Diseases of the Mouth and Stomach in relation to Dentistry, and on Practical Dental Microscopy. Fees—General Hospital, £12 12s.; Mason College (Lectures), £50. Prospectuses and further information can be obtained from

GEO. H. MORLEY, *Registrar of the College.*

Devon and Exeter Dental Hospital.

Pupils of any member of the Staff or other regisistered practitioner (being a Life or Annual Governor) are permitted to attend the practice of the Hospital, subject to the approval of the Medical Sub-committee, on payment of £5 5s. annually to the funds of the Institution. Attendance on the practice of this Hospital is recognised by the Royal College of Surgeons of England as qualifying for their Dental diploma. Full particulars can be obtained of

HENRY YEO, *Hon. Secretary.*

EDINBURGH.

Edinburgh Dental Hospital and School.

31, CHAMBERS STREET, EDINBURGH.

The new premises, 31, Chambers Street, present every facility for a complete Dental training.

Besides the ordinary practice and instruction, the following special classes have been instituted in Gold Filling, Dental Materia Medica and Therapeutics Dental Metallurgy.

There are rooms for extracting, with and without anæsthetics, and every facility is given for the thorough acquisition of a knowledge of anæsthetics and their application.

Special facilities are also afforded in the mechanical department under the superintendence of the Lecturer in Dental Mechanics and his Demonstrators; a large and fully equipped workroom under the charge and direction of a competent mechanic having been set aside for the construction of Dental appliances, and general Technical Training.

Fee for two years' Hospital Practice, £15 15s.; Lectures, as required by the Curriculum, £16 11s. Special Lectures free.

There is a Students' Society in connection with the School.

The prospectus for Session can be obtained on application to the Dean, at 31, Chambers Street.

One or two indentured pupils can be attached to the School, who will receive both Mechanical and Operative instruction within the building. Period of Pupilage, four years. This term includes period of medical study.

Instruction in general subjects is obtained at "The Medical School of the Royal Colleges of Physicians and Surgeons of Edinburgh."

The total fees for the necessary Hospital practice and Lectures amount to £95 15s.

W. BOWMAN MACLEOD, *Dean.*

GLASGOW.

Glasgow Dental Hospital.

5, St. Vincent Street.

The Hospital is situated in the most central and busy thoroughfare of the city (5, St. Vincent Street, corner of George Square), is fully equipped with every facility for the training of Dental students. It is well lighted, the sanitary arrangements are complete, and the electrical installation is an efficient one. Students desirous of joining may do so at any time.

The Winter Session commences on November 1, 1899.

Fees for attendance at the Lectures and Hospital practice £25 4s.

J. R. Brownlie, L.D.S., *Dean.*
D. M. Alexander, *Secretary,*
97, West Regent Street, Glasgow.

The Medical Schools in connection with the Dental Hospital are the University, Andersonian, and St. Mungo.

The fee for the two latter is £2 2s. for each subject (except Anatomy £4 4s.). At the Glasgow University the fee for each subject is £3 3s. (except Anatomy and Dissections £9 9s.). The fee for General Hospital Practice is £15 15s.

IRELAND.

The Incorporated Dental Hospital of Ireland.

Lincoln Place, Dublin.

All Dental Students who have passed their preliminary examination are admissible to the Clinical Instruction of the Hospital, after paying fees and subscribing to the conditions prescribed by the staff.

In addition to Clinical Instruction, courses of lectures and demonstrations will be given at the Hospital in Dental Surgery and Pathology, Mechanical Dentistry, the Administration of Anæsthetics, crowns, pivots, porcelain inlays, gold filling, &c.

In addition to the longer courses of Hospital attendance, special courses of three months' duration will be given to surgeons about to join the Army and Navy, or to practise in the Colonies or remote country districts.

Fees (all of which are payable in full and in advance)—

Dental Hospital Practice.—First year, £15 15s. Second year, £12 12s. Six months, £5 5s. Three months, £3 3s.

In addition to the above courses, Registered Dentists, who are *Members of the British Dental Association*, will usually be permitted to take out a three months' course for a fee of six guineas.

Further particulars can be obtained from the Registrar of the hospital, or from A. W. W. Baker, *Acting Dean.*

LIVERPOOL.

Liverpool Dental Hospital and School of Dental Surgery.

The courses of systematic instruction are given in University College, five minutes' walk from the Dental Hospital. The two institutions are now closely associated, and the management of the Curriculum is in the hands of a joint Committee.

At the Dental Hospital recent alterations have been made, and as it now stands this school offers advantages to students which are not excelled anywhere.

The ground floor of the building contains the following:—Extraction Room, with all needful appliances; Anæsthetic Room, specially reserved with every convenience; and large waiting room for Patients. The first floor has a large board room and a very comfortable students' room set apart exclusively for the use of Students.

The whole top floor of the building has been thrown into one fine airy and well-ventilated Operating Room. This room accommodates upwards of thirty operating chairs, which are of the "Morrison Pattern," and each of which has a special electric light (canting pendant) suspended before it. In the basement a very convenient workroom has been fitted up containing the necessary requirements, and there are commodious lavatories for Students.

A new Laboratory for Practical Mechanical Work has been constructed so as to meet the requirements of the Curriculum. A Skilled Dental Mechanic has been engaged, working under the supervision of the Warden, and Students will be able to undertake at the Hospital the whole of their training in Mechanical Dentistry.

The times of the Lectures at University College are arranged to meet the convenience of Students, thus allowing the maximum time for attendance upon Dental Hospital Practice.

The Staff of the Hospital includes twelve honorary Dental Surgeons, an anæsthetist, a Demonstrator, two House Surgeons, and a Curator.

Fees for six months' Hospital practice, £7 7s.

Fees for two years' Hospital Practice, £21; for three years' mechanical course (or pupilage), £105.

The various Medical and Dental Lectures are given at University College.

The Anatomical Department contains an excellent collection of skulls illustrative of human and Comparative Dental Anatomy.

The Dissecting Room and Theatre are lighted by electricity.

The Physiological and Pathological Department have entered into occupation of new and spacious Laboratories erected by the Rev. S. A. Thompson Yates. These Laboratories were opened by Lord Lister, P.R.S., in October last. Fees: The Composition Fee for all Lectures is £50 in one payment on entrance, or in two equal instalments (one half on entrance and the remainder within twelve months). The fee for General Hospital practice is £10 10s.

SCHOLARSHIPS AND PRIZES.

(1) FLETCHER SCHOLARSHIP.—Mr. Fletcher, of Warrington, has established an Entrance Scholarship of £20 for one year. The Scholarship is open to students beginning their Dental Hospital course, and is awarded on

the results of an examination (written and practical) in Mechanical Dentistry; the Examination is held in October.

(2) THE QUINBY PRIZES for Operative Dental Surgery, open to all Students who enter for the two years' study required by the curriculum. Senior prizes (1) £8, (2) £6; Junior prizes, (1) £4, (2) £2.

(3) ASH'S PRIZE of Two Guineas for the best paper on some subject in Dental Surgery.

(4) MEDICAL FACULTY MEDALS AND CERTIFICATES. — Torr Medal in Anatomy. Holt Medal in Physiology Bronze Medals for Elementary Anatomy and Histology. Book Prizes for Practical Anatomy. Silver Medal and Certificates for Special Dental Classes (taken together).

(5) SCHOLARSHIP IN DENTAL SURGERY.—A Scholarship (value £10 10s), guaranteed by Mr. E. J. M. Phillips for five years, will be offered for competition among Senior Dental students at the end of the Summer Session, on the results of a Special Examination in Surgery and Dental Surgery. Names of competitors must be in the Dean's hands by June 15.

Further particulars can be obtained of

A. M. PATERSON, M.D., *Dean.*

MANCHESTER.

Victoria Dental Hospital.

DEVONSHIRE STREET, ALL SAINTS.

Two Dental Surgeons are in attendance each time the hospital is open, and are assisted in the practical teaching by the Demonstrator and House Surgeons.

During their first six months at the Hospital new students are taken by the Demonstrator through a very complete course of practical instruction in all branches of operative dentistry. This course includes the actual preparation and filling of cavities out of and in the mouth, the treatment of the different pathological conditions of the dental pulp, the treatment and filling of root canals, and the different methods of crowning.

A special course of Demonstrations is given to more advanced students by the Lecturer on Operative Dentistry, and other Demonstrations are given periodically by the Dental Staff.

Prizes.—The Fletcher prizes are awarded annually—in July. They consist of a first prize, value £8, for the second year's men, and a second prize, value £2, for the first year's men. The Matheson Operating Prize, value £3 3s. A prize, value £2 2s., is given by Messrs. Ash & Sons for the best essay on some subject in general surgery in connection with the teeth. This prize is awarded in July. Two prizes, value one guinea and two guineas, are offered respectively to first and second years' men, for proficiency in the extraction of teeth. A prize, value £2 2s., for the best Regulating Case treated during the year.

Fees.—The fee for the two years' Dental Hospital practice required by the College of Surgeons of England is £21, which must be paid in advance.

Pupils are received for the three years' training in Mechanical Dentistry.

A prospectus containing full information may be had on application to—

WM. SIMMS, *Dean.*

The dental lectures and general instruction are obtained at the Owens College, in conjunction with the Manchester Royal Infirmary.

The dental department forms an integral part of the department of medicine, and affords the fullest opportunities for study to students preparing for any of the dental examinations.

In addition to the ordinary dental lectures required by the licensing bodies, a course on Operative Dentistry is given during the summer session, and these are supplemented by a series of practical demonstrations given by the lecturer at the Victoria Dental Hospital.

There is also a special course of demonstrations on Dental Histology and Pathology, in which students are enabled to mount for themselves microscopic specimens illustrating these subjects.

Prizes or medals and certificates are awarded in all the classes on the results of the several examinations.

The fee for two years' lectures, &c., required by the Dental Curriculum of the Royal College of Surgeons of England is £50, payable in two sums of £25 each at the beginning of the first and second years of studentship.

The two years' general hospital practice is taken at the Manchester Royal Infirmary, fee £10 10s.

Prospectuses will be forwarded on application.

S. CHAFFERS, *Registrar.*

NEWCASTLE-UPON-TYNE.

The Newcastle-upon-Tyne Dental Hospital and School.

37, NELSON STREET.

This school is conveniently situated near the University of Durham College of Medicine and College of Science (at Newcastle-upon-Tyne) and the Royal Infirmary.

Being in the midst of a densely populated neighbourhood, there is an abundant daily supply of patients and instructive cases.

The Dental part of the Curriculum has been carefully arranged to fulfil the requirements of the various examining bodies, and with a view to giving an education which the advance of modern dentistry demands ; the importance of the practical part being given special consideration.

The rooms of the hospital are well lighted and thoroughly equipped for carrying on the work. Dental Surgeons and Anæsthetists attend each morning and give demonstrations on treatment on the various methods of gold filling, crowning, crown-and-bridge work, regulation cases, administration of anæsthetics, &c.

Lectures are given during the Summer Session on Dental Surgery and Pathology, Dental Anatomy and Physiology, Dental Materia and Therapeutics ; and during the Winter Session on Dental Mechanics ; while there is a Winter and Summer Course on Operative Dental Surgery.

R. L. MARKHAM, *Dean.*

Instruction in General Subjects can be obtained at the University of Durham Colleges of Medicine and Science, Newcastle-upon-Tyne.

SHEFFIELD.

The Dental Department of the Sheffield Royal Hospital is now recognised by the Royal College of Surgeons, England. Particulars can be obtained of the Secretary to the Hospital. The Dental School has now been formed in conjunction with the Medical Department of the Sheffield University, and the report of the Commissioner of the Royal College of Surgeons is now awaited, with regard to the recognition of the *school* by this body.

A fine laboratory, fully equipped, has just been added. Further particulars can be obtained of the Hon. Sec. to the Dental Staff, Sheffield Royal Hospital.

ADDITIONAL QUALIFICATIONS.

A qualification in medicine and surgery, in addition to the L.D.S., is of great value to the dental surgeon. The curricula demanded by the various medical corporations are much broader than that required for the dental diploma, and the student who fulfils such curricula naturally acquires a greater breadth of knowledge which cannot fail to be of use to him in treating many of the pathological conditions met with in the mouth.

To those intending to take an additional medical qualification, the following will be found a good plan. The references are made, for the sake of an example, to the English qualifications, viz., the L D.S. in connection with M.R.C.S.Eng., and the L.R.C.P.Lond.

The alterations made by the College of Surgeons of England in the dental curriculum have virtually made the curriculum for the 1st and 2nd professional examination for the conjoint examination identical with that for the dental diploma, and by allowing the mechanical work, practical pharmacy, chemistry and elementary biology to be taken before registration, gives the dental student greater opportunity for taking, in addition to the L.D.S., the conjoined diploma, of which it is to be hoped he will take advantage. Inasmuch as the dental students have to take the same subjects as the general student, it would be wise with a view to thoroughness, that the 1st and 2nd professional examination for the conjoint diploma should be passed, thus ensuring that the subjects are properly attended and learnt. The subjects for the final examination for the M.R.C.S. and L.R.C.P. can then be taken at leisure, and may extend over some years, and the examinations passed from time to time as opportunity arises, even after the student has begun dental practice.

Those students who have passed the 1st and 2nd examination for the conjoint diploma will not be examined in anatomy and physiology at the examination for the L.D.S.

During the mechanical apprenticeship, which is recognised by the College of Surgeons when taken previous to the preliminary examination, the student can receive instruction at certain institutions recognised by the conjoint board, in chemistry, including chemical physics, practical chemistry, practical pharmacy and elementary biology, and after the preliminary examination has been passed, he should register as both a dental and medical student, and present himself for examination in these subjects before entering a hospital, then enter simultaneously at a general and dental hospital. At the end of his first six months he can pass his first professional examination for the L.D.S., and at the conclusion of his second winter he can present himself for the examination in anatomy and physiology.

At the expiration of two years he may present himself for the final examination for the dental licence ; he will, during these two years, have been attending simultaneously both the general and dental hospitals. During the remainder of his time he should devote himself to surgery, medicine, and midwifery.

It is felt that the recent changes brought about by the amalgamation of the two Colleges have greatly increased the difficulty of obtaining these higher qualifications ; such is not really the case, the curriculum being really simplified.

For the convenience of reference the mode of procedure is tabulated as concisely as possible for the dental student to obtain the three diplomas :—

1. Preliminary examination.

2. Apprenticeship.

3. Registration as a dental and medical student, or this latter can be postponed until entry at hospital.

4. During apprenticeship receive instruction as above in chemistry, pharmacy, and elementary biology, and pass in them at the Examination Hall.

5. Enter simultaneously at the dental and general hospitals.

6. Pass the first professional examination for the Dental Diploma on the completion of six months' attendance at a Dental Hospital.

7. Pass in anatomy and physiology at end of second winter session.

8. Pass final examination for dental licence at end of second year.

9. Devote remainder of time to medicine, surgery, midwifery, &c.

10. Pass the final examination of the two colleges.

The best plan, however, for those who have the time to spare is to complete the examination for the medical qualification, and then enter at a dental hospital and subsequently take the dental diploma. In this way the student brings the whole of his knowledge of general surgery and medicine to bear upon the special surgery of the mouth, and naturally obtains a clearer insight into the pathology of the various affections he has to deal with.

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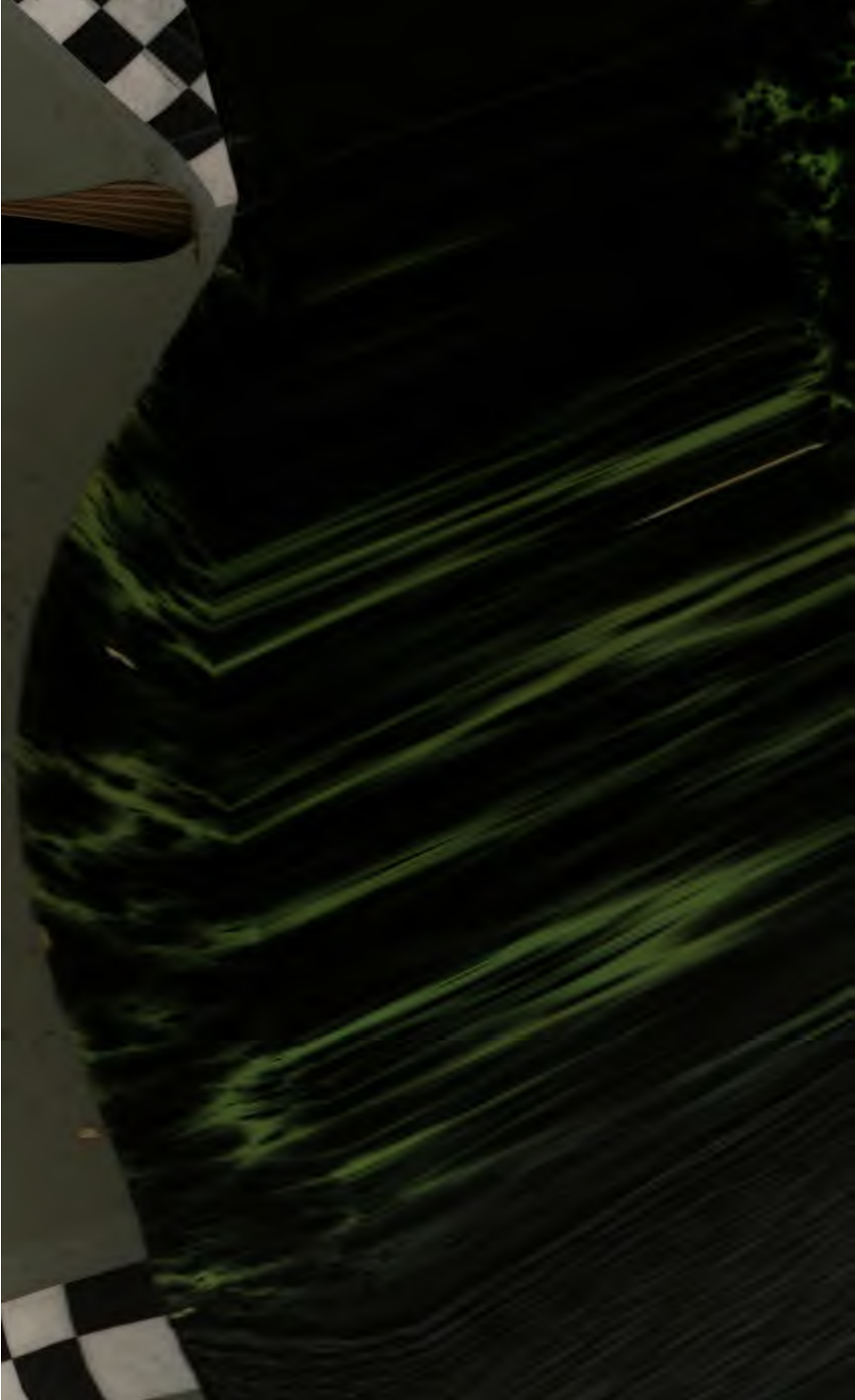

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